

I hereby submit the following opinion piece for the record of the solicitation for UK plutonium management. That the U.S. Department of Energy's plutonium fuel (MOX) program in the United States is on shaky ground should be of interest to decision makers in the UK who may be considering MOX use, which is turning out to be a costly boondoggle in the United States. The MOX program has a long ways to go before it is at the point of any MOX use in nuclear reactors and could yet be terminated as it appears that around \$20 billion is yet to be spent, far over earlier cost estimates and which is of growing concern to fiscal conservatives in Washington.

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## **TVA should jettison plutonium project**

<http://www.knoxnews.com/news/2012/may/19/tom-clements-tva-should-jettison-plutonium/>

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The Tennessee Valley Authority is quietly deliberating participation in a risky, expensive and controversial program: use of experimental reactor fuel made from surplus weapons plutonium.

TVA's interest is due to a U.S. Department of Energy program that began studying the use of plutonium-uranium mixed oxide fuel (MOX) in the mid-1990s as a way to dispose of surplus weapons materials.

In spite of growing financial and technical problems in implementing the program, DOE is focused on convincing TVA to take on the increasingly questionable MOX mission. TVA should be skeptical about participating.

Use of MOX fuel from weapons-grade plutonium poses serious nonproliferation and technical challenges. It makes a reactor harder to control, is thermally hotter inside the reactor than traditional fuel, and spent MOX is much hotter than uranium fuel, presenting storage challenges. MOX fuel produces more gases and could lead to higher radiation exposure in an accident. It is also much more expensive than traditional uranium fuel so will have to be heavily subsidized, but TVA could be stuck with additional costs and risks.

Although MOX fuel made from weapons-grade plutonium has never been used on a commercial scale, construction of a costly MOX fabrication facility is under way at DOE's Savannah River Site in South Carolina. When Duke Energy dropped out of the program in 2008 after an aborted MOX test in one of its reactors, DOE began a frantic search to find other utilities willing to consider MOX.

In June 2009, TVA signed an agreement with DOE's contractor at SRS to consider using MOX in the aging Browns Ferry and Sequoyah reactors. A joint DOE-TVA Environmental Impact Statement on MOX use is under way, and hearings where the public can voice opinions are anticipated this summer.

MOX boosters hope that TVA can avoid the in-reactor testing required by the Nuclear Regulatory Commission, but it is inconceivable that MOX could be used without the testing required of new fuel forms. That the NRC would make a licensing decision absent actual testing in the U.S. would represent an unacceptable weakening in regulations for political purposes.

Pressure by DOE on TVA to use MOX is growing as projected costs of the program are skyrocketing and congressional concern intensifying. The House Appropriations Committee stated in late April that MOX plant construction "will overrun its projected completion date by months if not years" and that the "projected annual operating costs of the MOX facility have skyrocketed and are now 2.5 times the projections of just two years ago," or a whopping \$499 million per year for the 20-year life of the plant.

Further, the House Appropriations Committee acknowledged huge increases in the cost of the MOX plant, which has grown from an estimate of \$1.6 billion in 2004 to nearly \$6 billion today. The program mainly appears to be an inefficient jobs program for South Carolina, backed by politicians, such as Sen. Lindsey Graham, who are letting parochial interests trump fiscal conservatism and sound nonproliferation policy.

With as much as \$20 billion yet to be spent on the overall MOX program, Congress is waking up to the fact that the MOX program may be headed toward failure.

Given technical and cost risks that are garnering growing attention from budget-cutting hawks in Congress, the MOX program adds up to a bad gamble, and the sooner TVA halts its review of MOX the better.

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