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EDITORIAL

The Nuclear Fleecing of America

One of the major news channels has a feature called "The Fleecing of America." It brings to the public's attention wasteful spending on items costing hundreds of thousands of dollars, but seldom those in the billion-dollar range. One such fleecing is presently being contemplated by the U.S. Department of Energy (DOE).

All U.S. nuclear weapons production facilities are presently closed down, and if the various START agreements are adhered to, those facilities will probably never be required except for one critical capability. All modern nuclear weapons use uranium, plutonium, and tritium. Uranium and plutonium have very long half-lives, and there is a large surplus of these materials. Tritium, however, has a relatively short half-life of about 12.6 years, so about 5 percent of the amount on hand must be replaced each year to maintain the current inventory. Because of the large retirement of nuclear weapons by the United States in compliance with early SALT agreements and national policy, tritium from retired weapons has been used to make up that lost through natural decay. However, in about 10 to 15 years, depending on future START negotiations, the United States will need a guaranteed supply of tritium to maintain its stockpile at whatever level is agreed on.

In anticipation of this future need to produce tritium, DOE is pursuing two technologies. One uses a nuclear reactor that could also produce electricity whose sale would recover not only the capital cost of the reactor but also its annual operational cost. Unfortunately, the present Administration has a definite bias against nuclear power, so an alternative method is also being pursued even though it is agreed that it will cost twice as much as a reactor and use as much electricity as a reactor would produce. This technology uses an accelerator to produce high-energy protons that in turn produce neutrons that interact with either lithium or helium three to yield tritium. The main argument for the accelerator is that it produces no conventional nuclear wastes. Proponents readily admit that it will produce radioactive materials, but with a relatively short half-life compared with that of wastes from spent nuclear fuel. The fact that the accelerator will require the equivalent of a nuclear power plant to supply its electricity is ignored. Proponents also neglect to mention that about 22 percent of all electrical energy generated in the United States comes from nuclear power plants, so that 22 percent of the power used by the accelerator will generate conventional nuclear wastes, in addition to those the accelerator produces.

There is an alternative to either the reactor or the accelerator, which is simply to buy the required tritium from Canada or Russia. Canada presently cannot supply tritium for defense purposes, but its government might be convinced that by supplying tritium and thus preventing the construction of new production facilities they would contribute to nuclear disarmament and nonproliferation and gain revenue from a material for which they have little use. Russia has a surplus of tritium from the START stockpile reductions and produces tritium in some of its power reactors. Our first reaction to the idea of buying tritium from Canada or Russia is that we cannot rely on a foreign nation for a component that is vital to our nuclear deterrent. But a decision to build a reactor or an accelerator is not required for at least 3 years, and actual production is not needed for 6 to 10 years. If we contracted with Canada or Russia to supply only the tritium required to replace 1 year's decay, the decision date could also be delayed 1 year. If the supplier reneged, we would be in the same relative position as before the agreement. In the meantime, modest funding to continue design of the appropriate reactor or accelerator system could proceed.

The advantage of such a proposal is that if we ever need our own production system, enough time will have been spent in its design to ensure the very best technology, and we will have deferred a very large capital expenditure. If we purchase tritium from Russia, we will also improve our relations with them and help alleviate their need for hard currency. We have made arrangements to buy enriched uranium from their stockpile, so the precedent for buying nuclear materials from Russia already exists. Contracting to buy our tritium needs would avoid a \$2-billion (or more) fleecing of America and could even contribute to world stability.

Harold M. Agnew

The author is former director of the Los Alamos Scientific Laboratory and former chairman of the General Advisory Committee to the Arms Control and Disarmament Agency.