

velopment by the San Diego-based General Atomics company, and the Pebble Bed Modular Reactor (PBMR), which is being developed by the South African government. The reactors are similar in concept, but have different fuel configurations.

Walter Simon, a senior vice president at General Atomics who has worked with high-temperature gas-cooled reactors for 40 years, discusses why GA's reactor is being built in Russia, and will use weapons-grade plutonium as its fuel source.

South Africa's PBMR Is Moving Ahead

The Pebble Bed Modular Reactor (PBMR) now under development by South Africa's electricity company, Eskom, is a 110 megawatt-electric (MW-e) design. This type of reactor was developed in Germany, but Eskom has added new technologies, such as the direct-cycle helium turbine, to make the reactor more efficient.

Eskom's partners in the PBMR project include South Africa's Industrial Development Corp., British Nuclear Fuels Ltd., and the U.S. company, Exelon.

The initial feasibility report for the PBMR in South Africa has been completed, and the detailed feasibility report has been reviewed by the investor groups, and is now before a 14-member panel of international experts appointed by the South African government.

According to PBMR spokesman Tom Ferreira, "The feasibility study has confirmed that there are no unresolvable issues. The investors have indicated that they remain positive about the PBMR's potential and toward the end of the year will make decisions about the way forward for the project."

Ferreira said that "the investors are taking a cautious and prudent approach to satisfy themselves that all the remaining technical and organizational uncertainties surrounding the project are resolved to the appropriate degree, before committing funds to the construction of the first reactor."

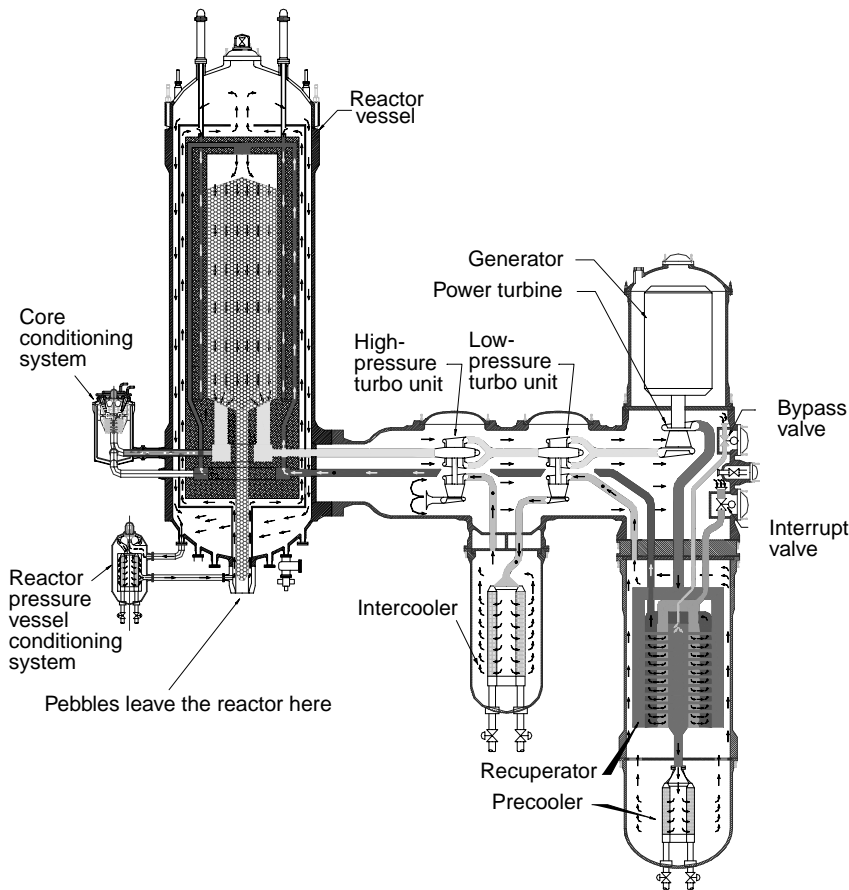
The next phase of the project is more

detailed engineering and planning work. In addition, there will be a round of public meetings on the environmental impact assessment early this year. "It is hoped that the South African government and the shareholders will give the green light for the building of a construction module before the end of 2002," Ferreira said.

Because of its small size and low cost, the PBMR is an ideal design for developing nations, which have electricity grids that may be too small, initially, to handle a larger plant. These countries or regions can add PBMR modules as needed. To reach higher powers, Eskom envisions siting as many as ten PBMR units at one location, with a common control room.

Eskom anticipates exporting up to 30 PBMR modules a year once the program for mass production is under way. Because of the economies of mass production of standardized modules, Eskom has estimated a total cost of PBMR-generated electricity at less than 1.6¢ per kilowatt hour. (Now, most U.S. consumers are paying 8¢, or more.)

FIGURE 1
Cutaway View of the PBMR



Source: Courtesy of Eskom.