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Companies Bet on Rise in Demand for Uranium

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WASHINGTON — Uranium enrichment, the market that the Noble Group has entered with its purchase of USEC stock, is a globalized business fraught with uncertainty.

Besides rapidly changing technology and questions about how many new reactors will be built, the market can be affected by vagaries like future arms control agreements.

But a lot of companies are bullish — which means plenty of competition for USEC.

On Thursday a European company, Urenco, had a ceremonial ribbon-cutting in Eunice, N.M., for a second phase of an enrichment plant that it began operating there this month. The New Mexico factory is the first new uranium enrichment plant in decades in this country.

When both phases are complete, the plant will cost $3 billion, and by 2014 it will have enough capacity to meet the needs of half the nuclear power reactors in the United States, according to the owners.

More worrisome for USEC, the Urenco plant uses modern centrifuges. They consume only about 5 percent as much electricity, per unit of enrichment, as USEC's plant, which uses a World War II-era technology called gaseous diffusion.

Moreover, in May the Energy Department promised a $2 billion loan guarantee to another European firm, Areva, to build a centrifuge enrichment plant in southern Idaho.

General Electric, meanwhile, is working on a laser system to enrich uranium, at its nuclear fuel plant in Wilmington, N.C.

"Enrichment is needed, whether the United States builds another nuclear plant or not," said Andrea Jennetta, president of International Nuclear Associates, a Washington consulting firm.

China has a “hugely ambitious” reactor construction campaign and not much enrichment capability, she said, and some enrichment equipment around the world is getting old.

USEC is also working on a new enrichment technology, a centrifuge system, but it is struggling. It has spent $1.5 billion on a centrifuge plant in Piketon, Ohio, where it formerly had a gaseous diffusion plant. But last July, the Energy Department turned down USEC’s application for a $2 billion loan guarantee, partly because it was not clear where all the financing would come from.

USEC, though, was invited to resubmit its loan guarantee application, which the company said it would do.

In May, USEC announced that two large nuclear companies, Toshiba and Babcock & Wilcox, had agreed to invest $100 million each in the Piketon project, subject to certain conditions.

Even as far back as 1992, when Congress passed legislation to privatize the government enrichment enterprise that is now USEC, it was clear that it would need new technology to survive. In fact, the assumption that a private company could more easily acquire that technology was a reason the government spun off USEC, which went public in 1998.

At first, USEC bet heavily on a laser technology, but abandoned that in 1999.

One of its continuing sources of profit has been its role in handling Russian military uranium, blended down and shipped to the United States. That has filled half the demand for reactor uranium for the last few years. But that is not a long-term survival strategy, in part because Russia itself has excess enrichment capacity.

Enrichment is a crucial step in turning uranium ore into reactor fuel.

In nature, uranium is about 99.3 percent uranium-238, a form that does not easily split, and about 0.7 percent uranium-235, which works well in reactors and bombs.

Enrichment means raising the proportion of uranium-235. For reactors, it is usually between 3 percent and 5 percent.

Some research reactors and reactors that make isotopes used in medicine run on much higher concentrations. But the United States is trying to discourage that, to reduce the amount that could potentially fall into the hands of a weapons builder. Bombs and the reactors used on aircraft carriers use uranium enriched to more than 90 percent.