

## Fact Sheet

# USEC's American Centrifuge Program

### American Centrifuge Technology

- USEC is investing in advanced technology to provide a long-term, reliable and secure fuel source for the world's nuclear power plants and meet the energy needs of a growing population.
- The American Centrifuge is expected to be the world's most advanced uranium enrichment machine and is expected to produce more enriched uranium per machine than other commercial centrifuges.
- As the only domestic enrichment facility using U.S. technology, the American Centrifuge Plant (ACP) will play a major role in supporting America's energy security and national security.
- The American Centrifuge is based on technology initially developed by the U.S. Department of Energy (DOE) during the 1960s, 70s and 80s and successfully demonstrated, but which was ultimately not commercially deployed for reasons unrelated to the technology itself. USEC has modified and improved this technology through the use of modern materials, advanced computer-aided design, digital controls and state-of-the-art manufacturing processes.
- American Centrifuge technology is expected to offer substantial production cost savings compared to USEC's existing gaseous diffusion technology. For example, the American Centrifuge Plant is expected to use about 95 percent less electricity than a comparably sized gaseous diffusion plant.

### American Centrifuge Plant in Piketon, Ohio

- The U.S. Nuclear Regulatory Commission (NRC) issued USEC a construction and operating license in April 2007. USEC began construction on the American Centrifuge Plant in late May 2007.
- The American Centrifuge Plant will feature modular cascade architecture that allows capacity to be added as the use of nuclear energy increases. The Environmental Impact Statement issued by the NRC evaluated the modular expansion of the plant to about double its production capability.
- USEC estimates that the commercial plant, when completed, will employ more than 400 people at the plant site and create more than 8,000 direct and indirect jobs across the United States.
- USEC has a contract with Fluor to provide engineering, procurement and construction management services for the commercial plant.
- The baseline deployment schedule for the plant included beginning initial commercial operations in 2010 and reaching an annual production capacity at the ACP of 3.8 million SWU per year at the end of 2012. However, this schedule will be delayed. USEC's ability to meet this schedule was dependent on USEC obtaining a commitment for a loan guarantee from DOE in the timeframe needed. In light of the absence of that commitment and USEC's demobilization of portions of the project, USEC is not in a position to definitively update this schedule at this time.
- The successful construction and operation of the American Centrifuge Plant is dependent upon a number of factors, including the availability and timing of financing, performance of the American Centrifuge technology, overall cost and schedule, and the achievement of milestones under the 2002 DOE-USEC Agreement.

## **American Centrifuge Demonstration Facility in Piketon, Ohio**

- The American Centrifuge Demonstration Facility is a plant prototype that will provide important cost, schedule and performance data for the American Centrifuge Plant. The demonstration facility features a series of full-size centrifuge machines operating in a closed-loop cascade configuration in which streams of enriched uranium and depleted uranium are re-fed into the machines.
- The Lead Cascade integrated testing program began operating in August 2007. Tests have demonstrated the capability of the American Centrifuge technology to produce low enriched uranium at product assay levels in a range useable by commercial nuclear power plants.
- The prototype centrifuge machines involved in the Lead Cascade integrated testing program have operated for more than 275,000 machine hours, providing data on equipment reliability and operating experience for our plant operators and technicians.
- USEC's production centrifuge machine design is the AC100. USEC's suppliers assembled approximately 40 AC100 series machines during the summer of 2009 and initial AC100 cascade operations were planned for the third quarter. However, the project team determined that at least some of the machines were not assembled in full compliance with the specified drawings and procedures. As a result, USEC initiated a quality assurance stand down from operation of the AC100 cascade in order to remove, disassemble and inspect all of the AC100 machines.

About a dozen AC100 centrifuges have been reassembled with updated components incorporated. Ten of these machines are installed and spinning in the cascade and about two dozen machines should be reassembled by the end of November. These commercial, production-ready AC100 machines should begin operating in a cascade mode in early 2010.

- USEC has a world-class team of American contractors manufacturing and assembling centrifuge machine components. These include B&W, ATK, Curtiss-Wright, Major Tool & Machine and Honeywell.
- The NRC issued a license that authorized USEC to construct and operate its American Centrifuge Demonstration Facility in February 2004. In August 2006, the NRC assumed oversight of the Demonstration Facility from DOE.

## **USEC's Testing & Machine Manufacturing Activities in Oak Ridge, Tenn.**

- The technology development work done in Oak Ridge includes making enhancements to the proven technology developed and demonstrated by DOE.
- In 2006, the USEC project team at Oak Ridge tested a centrifuge machine that demonstrated performance of about 350 SWU per machine, per year. This performance level has been reaffirmed in subsequent testing. Improved AC100 machine components and design features are being tested in special test stands. We continue to identify opportunities to further optimize the machine and cascade design and also to work on the design for the value-engineered AC100 machine.
- UT-Battelle for Oak Ridge National Laboratory provides assistance with centrifuge design, testing and analysis work under a Cooperative Research and Development Agreement (CRADA).
- It is fitting that USEC is doing its centrifuge development and testing in Oak Ridge, where uranium enrichment technology began in the 1940s and where DOE developed the original centrifuges from the 1960s until the 1980s.

**For more information visit [www.americancentrifuge.com](http://www.americancentrifuge.com)**