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Fuelling the Nuclear Renaissance

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Introduction

A year ago, I told the nuclear industry at a Nuclear Energy Institute conference that we were moving forward with an advanced technology programme for uranium enrichment – that we were committed to deploying the best centrifuge technology in the world.

Today, I tell you that, based on where our programme currently stands, by 2005 USEC **will** be operating a commercial-sized module consisting of hundreds of next generation centrifuge machines that we are confident will be the most efficient in the world and that will lead to starting commercial plant operations in this decade..

We have taken major steps on the road to deployment since I stood before the nuclear industry last year and announced our commitment to centrifuge.

I want to tell you what we have done, where we are going and how you can count on us to do our part in supporting the renaissance of nuclear power.

USEC's mission

For the past 50 years, the US enrichment industry has relied on gaseous diffusion, a workhorse technology that capably served the United States' defence needs and, since the 1960s, served much of the international commercial nuclear industry. By the end of this decade, USEC will serve the industry with US gas centrifuge technology – the most efficient second-generation technology. In so doing, we will also continue to meet the growing needs of utility customers worldwide in the nuclear renaissance.

At the same time as we are advancing toward centrifuge deployment, we have taken steps to make our gaseous diffusion operations as efficient as possible. We have consolidated our enrichment and shipping operations at our Paducah, Kentucky plant; made modifications to the physical plant and our operating processes; become more competitive by downsizing our workforce both at the plants and at headquarters; and acquired competitively-priced electricity for Paducah. So, the Paducah plant will continue to operate reliably through the transition to the deployment of advanced technology. These actions, combined

with the execution of the pricing amendment to the US-Russian agreement, provide the cash flow and income needed to fund our technology demonstration programme, approximately US$150 million over the next five years.

The mission of USEC's advanced technology team is clear: to build a centrifuge plant that will meet the growing demand for nuclear fuel, ensure domestic energy security, better serve customers and assure the company's long-term competitive position.

Actions taken

Over the past year, we have moved aggressively to prepare for the course ahead.

In June of this year, we signed an agreement with the US Department of Energy that, among other things, enables us to renew our Cooperative Research and Development Agreement, or CRADA, with DOE's Oak Ridge National Laboratory, operated by the University of Tennessee (UT)-Battelle. This facilitates our continued work with the scientists and engineers responsible for developing the earlier US centrifuge. The DOE/USEC agreement lays the foundation for using DOE facilities, equipment and centrifuge intellectual property. This cooperative working relationship with DOE will help us deploy a new generation of advanced and efficient enrichment technology.

We have tripled our centrifuge staff in the last year, and we expect to triple it again this year. We are conducting our demonstration work at the East Tennessee Technology Park in Oak Ridge, where centrifuge test facilities already exist. And we have recently leased additional facilities at the Oak Ridge site where Boeing formerly manufactured centrifuges. Additional centrifuge engineering work is also underway at our two plant sites, in Paducah, Ky., and Portsmouth, Ohio.

Another step that we took this year involves the Lead Cascade. Let me take a moment to explain what the Lead Cascade is. Our Lead Cascade will demonstrate the basic building block of a commercial enrichment plant. It will consist of up to 240 full-size centrifuge machines. We are already working on the hardware testing. In 2005, the lead cascade will become the first operating module of a new generation of centrifuge designed for a commercial-sized plant in the United States. We will use this facility to obtain satisfactory reliability and performance data on its operations through the course of 2005 and 2006. For purposes of gathering this data, the facility will enrich uranium, but product will be recombined with tails and fed back into the system instead of being withdrawn. After the successful operation of the Lead Cascade through 2006, USEC will construct the commercial plant and begin operations later this decade.

In June, the Company took a major step in its siting process when we issued a request to the states of Kentucky and Ohio to submit their proposals for siting our Lead Cascade facility at either the Paducah or Portsmouth plant. Both communities have technically suitable sites and have demonstrated strong community support for the project. Economic development representatives from both Kentucky and Ohio are working diligently with our centrifuge team. We are currently reviewing initial proposals from both States, and USEC is on track to announce the Lead Cascade location late this year.

Over the last year, USEC has held a number of meetings and worked closely with the US Nuclear Regulatory Commission (NRC) in preparation for submitting the Lead Cascade licence application by April 2003. This advance work will reduce the time needed by the NRC to review and approve our application. Licensing a Lead Cascade will also enable a smoother licensing process for the commercial plant.

Building on a great technology lessens the financial risks

We are reviving an impressive technology. DOE spent more than two decades and US$3 billion on centrifuge technology. Thousands of machines were built and operated successfully before DOE ended the programme in 1985 because of declining market demand.

In 1967, the US centrifuge development programme achieved the level of performance of Urenco's current TC-12 technology that produces about 40 SWUs per machine. Cascades of machines with performance levels in the range of Urenco's developmental TC-21 technology were built in the late 1960s and early 1970s and ran for more than a decade.

In fact, US centrifuge team members finally shut the machines down when they got bored watching them. My own introduction to centrifuge technology was in 1969 when I saw one of these cascades while working as a Technical Assistant to a Commissioner of the US Atomic Energy Commission. By the mid-1970s, there were about 1200 machine-years of experience with machines performing at approximately four times Urenco's TC-12 level of performance.

US centrifuge development stopped in the mid-1970s as efforts focused on the deployment of 200-SWU centrifuges in the Gas Centrifuge Enrichment Plant, or GCEP. In 1982, development resumed with the Advanced Gas Centrifuge programme. Performance quickly jumped above the 300 SWU level to levels above USEC's target.

USEC has selectes a more conservative design than wasstate-of-the-art in the United States in 1985 ensure that our centrifuge is both manufacturable and affordable with a lower risk development programme.

Therefore, we do not have to develop a new technology – it is already proven, conservative, reliable, manufacturable and operable. In the USEC machine, we are replicating a sound technology, with commercially available materials, modern manufacturing processes and modern electronics and control systems that create much better economics. Technological advances have made the cost of materials used for centrifuges far less expensive. We expect that capital costs per SWU will be significantly less than competing centrifuges we have evaluated. With the lowest unit cost basis, our technology will yield the best return on investment of any centrifuge being deployed.

USEC expects that its spending on its advanced technology programme will more than double in fiscal 2003, compared to fiscal 2002. However, we will not have to spend years and millions of dollars to improve its performance. At more than

300 SWU per machine per year, performance improvements are not needed. Therefore, we will spend our time and money on replicating and re-demonstrating the economics of a sound technology that uses new materials and manufacturing processes. USEC is in discussions with several potential vendors and manufacturing partners who have expressed a keen interest in this exciting project.

Building on a successfully demonstrated technology also lessens the financial risks involved in deployment. USEC's centrifuge demonstration programme will significantly reduce performance, cost, schedule and licensing uncertainties for the commercial plant. We will fund the Lead Cascade project, and we are confident that its successful demonstration will attract partners and/or investors for the construction of the commercial enrichment plant.

Milestones to deployment

This is what you can expect to see from us over the next several years. The milestones listed here come directly from the DOE-USEC Agreement. USEC is motivated to beat these milestones, since it makes good business sense to replace high-cost production with low-cost production as soon as you can.

December 2002	USEC begins refurbishment of K-1600 facility.
January 2003	USEC builds and begins testing a centrifuge end cap.
April 2003	Submit Licence Application for the Lead Cascade to the NRC (sited at either Paducah or Portsmouth).
June 2003	NRC dockets Lead Cascade Application.
November 2003	First rotor tube manufactured.
January 2005	Centrifuge testing begins.
March 2005	Submit Licence Application to NRC for Commercial Plant (sited at either Paducah or Portsmouth).
May 2005	NRC dockets Commercial Plant application.
June 2005	Begin Lead Cascade centrifuge manufacturing.
October 2006	Satisfactory reliability/performance data obtained from Lead Cascade operations.
January 2007	Financing commitment secured for a 1 million SWU Centrifuge Plant.
June 2007	Begin Commercial Plant construction/refurbishment.
January 2009	Begin Portsmouth Commercial Plant operations **or**
January 2010	Begin Paducah Commercial Plant operations.
March 2010	Portsmouth Centrifuge Plant annual capacity at 1 million SWU per year **or**
March 2011	Paducah Centrifuge Plant annual capacity at 1 million SWU per year.
September 2011	Portsmouth Centrifuge Plant (if expanded at USEC's option) projected to have an annual capacity at 3.5 million SWU per year **or**
September 2012	Paducah Centrifuge Plant (if expanded at USEC's option) projected to have an annual capacity at 3.5 million SWU per year.

We are on target to accomplish these milestones. A working group has been established with USEC and DOE participants. The milestone plan is divided into phases with the implementation of Phase I, the first year, well underway. We are putting in place the procedures and agreements to conduct testing in Oak Ridge. An architect-engineering firm has been hired to begin K-1600 refurbishment. We have built the end cap and are ready to begin its testing – the test rig is fully operational and ready to go.

And we are making great progress towards licensing our Lead Cascade. We have drafts of the Environmental Reports and Integrated Safety Analyses. We anticipate submitting the licence application well before the April 2003 deadline.

What about SILEX?

Let us not forget about SILEX. We are continuing to invest in SILEX, a third-generation laser-based technology being developed in Australia. We have the exclusive rights to this new uranium enrichment technology, and we will continue to fund SILEX research at a level that is commensurate with its rate of development. I should point out that it is not at the same advanced stage of development as the centrifuge technology: it is still in the research and development stage right now, whereas the US centrifuge technology is not far from commercial deployment. However, we have seen some promising test results.

Fuelling the nuclear renaissance

Not too many years ago, many of us in this room thought that a renaissance of nuclear power in the United States and in some other parts of the world would not occur in our lifetimes. But it is occurring.

The statistics, as you know, are impressive. Today there are some 440 nuclear power reactors in 30 countries, generating more than 16% of the world's supply of electricity.

Another 30-plus reactors are under construction around the world with an equal number either on order or in the planning stages.

The United States received a massive boost from the Bush administration's Energy Policy Report which made nuclear a cornerstone and significant contributor to the future energy supply mix. Recent events regarding Yucca Mountain are extremely encouraging. TVA has announced that it will restart Browns Ferry Unit 1.

Numerous US utilities have applied for and are receiving power limit uprates and 20-year reactor licence extensions from the NRC. And the early site permitting activity takes us one step closer to having new reactor construction.

The renaissance is not limited to the US. Finland has announced it will build a fifth reactor. Nuclear expansion remains strong in Asia. Nuclear power production records were set last year in many countries, including Brazil,

Germany, Spain, South Korea and Russia. Progress is being made globally on waste issues.

Conclusion

USEC is excited about the renaissance. As the global market for nuclear power grows, USEC is well positioned and committed to serving the expanding fuel needs of the industry.

USEC is committed to long-term global leadership in the nuclear industry. In the next several months, we will submit a licence application to the NRC for the centrifuge Lead Cascade. Building on a successfully demonstrated technology will lessen the financial risks of deployment. We are prepared to fund this Lead Cascade project, and we are confident that its successful demonstration will attract partners and/or investors for the commercial plant.

We are on track to be enriching uranium using new advanced gas centrifuges by the end of the decade, and we expect our advanced technology to be re-proven as the most efficient in the world.

USEC is doing its part to support the growth of the nuclear industry. With three generations of enrichment technology in our portfolio, we are prepared to fuel the renaissance of nuclear power.