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U.S. Signs International Fusion Energy Agreement

Large-Scale, Clean Fusion Energy Project to Begin Construction

PARIS, FRANCE – Representing the United States, Dr. Raymond L. Orbach, Under Secretary for Science of the U.S. Department of Energy (DOE), today joined counterparts from China, the European Union, India, Japan, the Republic of Korea and the Russian Federation to sign an agreement to build the international fusion energy project known as ITER.

“The energy that powers the stars is moving closer to becoming a new source of energy for the Earth through the technology represented by ITER,” U.S. Secretary of Energy Samuel W. Bodman said. “The ITER Members represent over half of the world’s population. The U.S. is proud to be part of this partnership, and to join in the pursuit of nuclear fusion as a source of clean, safe, renewable and commercially deployable energy for the future.”

Fusion energy is an important component of President Bush’s Advanced Energy Initiative (AEI), given fusion’s potential to become an attractive long-range option for the U.S. clean energy portfolio. In FY 2006, DOE allocated \$25 million to ITER and the President, as part of the AEI, has requested \$60 million for the project in FY 2007.

“Signing this agreement brings us one step closer to a viable source of fusion power,” Dr. Orbach said. “ITER also is the first stand alone, truly international, large-scale scientific research effort in the history of the world. It will surely serve as a model for future collaborative large scale science projects,” he added.

ITER will be constructed at Cadarache, France and is expected to be completed in 2015. The site is adjacent to the main research center of the French Atomic Energy Commission. The EU, as the host, will provide 45.46 percent of the construction phase funding. The U.S., as a non-host partner, will participate in the construction phase at the level of 9.09 percent. The U.S. contribution to ITER will consist of about 80 percent in-kind components, and about 20 percent in cash to a central fund and for personnel assigned to the project at the ITER site. DOE laboratories will subcontract with industry to build the components of ITER for which the U.S. is responsible. The total value of the U.S. contribution is \$1.122 billion.

Fusion energy, created when light atomic nuclei are fused together at temperatures greater than those of the interior of stars and far above the melting point of any solid container, could provide significant amounts of electricity and also generate hydrogen that could power fuel cell vehicles of the future. Fusion power has the following advantages:

- Fusion is clean: It produces negligible atmospheric emissions and zero greenhouse gas emissions.
- Fusion is safe: Reactors cannot “melt down,” and do not generate the high-level, long-lasting radioactive waste associated with nuclear fission.
- Fusion is renewable: Commercial fusion reactors would use lithium and deuterium, both readily available natural resources.

President Bush announced on January 30, 2003, that the U.S. was joining the negotiations for the construction and operation of this major international research project, whose mission is to demonstrate the scientific and technological feasibility of clean fusion energy. The President’s initiative in joining ITER allows the United States to share the combined experience and knowledge that will result from the design, construction and operation of this vital project at a greatly reduced cost to the individual partners. The U.S.

was one of the original participants in the early design and R&D for ITER, and U.S. participation in the ITER construction and operation phases capitalizes on the previous investment.

Following the initialing of the Agreement in Brussels on May 24, 2006, which marked the conclusion of negotiations, DOE transmitted to Congress the final initialed text to begin the 120-day review required by the Energy Policy Act of 2005. DOE also briefed committees of jurisdiction in both the House and the Senate during the negotiations to facilitate the 120-day review. On September 29, 2006, House Science Committee Chairman Sherwood Boehlert wrote to Secretary Bodman, "I am satisfied that the Agreement on the Establishment of the ITER International Fusion Energy Organization for the Joint Implementation of the ITER Project has been negotiated in accordance with the requirements listed in paragraph 972(c)(3) [of the Energy Policy Act of 2005]. Under Secretary Orbach and his staff are to be congratulated for their hard work over the past several years in securing this agreement."

President Bush's Advanced Energy Initiative represents a 22 percent increase in clean-energy research at the Department of Energy that will accelerate breakthroughs in the way our cars, homes and businesses are powered. For FY '07, the President requested more than \$2.1 billion in AEI funding for research into cutting-edge technologies with a goal of reducing oil consumption by 5 million barrels a day by 2025 and producing clean electricity for millions of homes.

DOE's Office of Science is the single largest supporter of basic research in the physical sciences in the nation and helps ensure U.S. world leadership across a broad range of scientific disciplines. The Office of Science supports a diverse portfolio of research at more than 300 colleges and universities nationwide; manages 10 world-class national laboratories with unmatched capabilities for solving complex interdisciplinary scientific problems; and builds and operates the world's finest suite of scientific facilities and instruments used annually by more than 19,000 researchers to extend the frontiers of all areas of science.

For more information about ITER, please visit http://science.doe.gov/News_Information/News_Room/2006/ITER/index.htm

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