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Jeanne Lopatto, 202/586-4940
Jeff Sherwood, 202/586-5806

NEWS MEDIA CONTACTS:
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Energy Secretary Abraham Announces U.S. to Join Negotiations on Major International Fusion Project

— Supports President Bush's Call to Develop Next Generation Technology —

PRINCETON, N.J. – President Bush has decided that the U.S. will join the negotiations for the construction and operation of a major international magnetic fusion research project, U.S. Secretary of Energy Spencer Abraham announced today. Known as ITER, the project's mission is to demonstrate the scientific and technological feasibility of fusion energy.

"This international fusion project is a major step towards a fusion demonstration power plant that could usher in commercial fusion energy," Secretary Abraham said. "ITER also provides a cost-effective way to proceed with fusion research world-wide with the collaborating parties sharing in the project's cost of construction and operation." Secretary Abraham made the announcement during remarks to employees of the department's Princeton Plasma Physics Laboratory, following a tour of the laboratory.

The Bush administration believes that fusion is a key element in U.S. long-term energy plans because fusion offers the potential for plentiful, safe and environmentally benign energy. A fusion power plant would produce no greenhouse gas emissions, use abundant and widely distributed sources of fuel, shut down easily, require no fissionable materials, operate in a continuous mode to meet demand, and produce manageable radioactive waste.

ITER will provide 500 megawatts of fusion power for 500 seconds or longer during each individual fusion experiment. ITER will demonstrate essential fusion energy technologies in a system that integrates physics and technology and will test key elements required to use fusion as a practical energy source. ITER will be the first fusion device to produce a burning plasma and to operate at a high power level for such long duration experiments. The fusion power produced in the ITER plasma will be 10 times greater than the external power added to the plasma.

Canada, the European Union, Japan and the Russian Federation are the current members of the collaboration who have been negotiating ITER construction and operation since last year. China has recently joined the negotiations as well. Candidate sites in Canada, the European Union and Japan have been offered, one of which will be selected during the negotiation and governmental decision-making process.

The U.S. proposes to provide a number of hardware components for ITER construction, to be involved in the project construction management and to participate in the ITER scientific research and technology development. The nature and details of the U.S. participation and contributions would be determined during the negotiations. DOE's Office of Science, which has extensive experience in large, international programs, will lead U.S. negotiations on ITER.

The construction cost for ITER, including buildings, hardware, installation and personnel, is estimated to be about $5 billion in constant 2002 dollars. However, since the cost will be shared among all of the parties, who will provide most of the components "in kind," the actual construction cost will be a combination of different amounts in different currencies. The U.S. share of the construction cost is expected to be about 10 percent of the total. ITER could begin construction in 2006 and be operational in 2014. Fusion research would last for up to 20 years.

The Department of Energy commissioned three reviews of ITER in preparation for a Presidential decision on whether the U.S. should enter into negotiations on participation in the ITER project. A National Research Council report endorsed the ITER effort as an essential next step in the U.S. fusion energy research program.

Fusion is the energy source that powers the sun and stars. In fusion, the nuclei of light elements, such as hydrogen, fuse together to make heavier elements, such as helium, giving off tremendous amounts of energy. ITER will use a "tokamak" concept — a toroidal (doughnut-shaped) magnetic configuration — to create and maintain the conditions for controlled fusion reactions on earth. In ITER, superconducting magnet coils around a toroidal vessel will confine and control a mix of charged particles, called plasma, and induce an electrical current through it. Fusion reactions will take place when the plasma is hot enough, dense enough and contained long enough for the atomic nuclei in the plasma to start fusing together. Additional information on ITER, including a brochure *U.S. and ITER*, is available at: **http://www.ofes.fusion.doe.gov/iter.html**

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