

# The Star-Ledger

## Energy chief tells Jersey: Fusion's back

Secretary, at top research lab in Plainsboro, says country resuming international effort

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The United States plans to resume participation in an international collaboration to develop fusion energy as a commercial power source, U.S. Energy Secretary Spencer Abraham said yesterday.

Abraham made the announcement during a visit to the country's premier fusion research lab in Plainsboro.

The director of the Princeton Plasma Physics Laboratory, Robert Goldston, and officials from the Department of Energy will travel to St. Petersburg, Russia, on Feb. 19 to begin negotiations on the project with other members of the collaboration, Abraham said.

Japan, Canada, the European Union, the Russian Federation, China and now the United States plan to build a \$5 billion fusion reactor, called the International Thermonuclear Experimental Reactor, or ITER.

The project's goal is to prove the scientific and technical feasibility of fusion energy. It should put scientists one step away from a demonstration fusion power plant, which physicists believe could be achieved in 35 years.

"By the time our young children reach middle age, fusion may begin to deliver energy independence and energy abundance to all nations, rich and poor. Fusion is a promise for the future which we cannot afford to ignore," Abraham said, drawing loud applause from about 250 scientists and other lab workers.

Fusion power produces no greenhouse gas emissions and only low levels of radioactive waste, and uses an abundant source of fuel -- hydrogen.

Abraham's announcement came two days after President Bush announced plans to increase funding for fuel cell research aimed at developing a cleaner power source for

automobiles.

Abraham said that under Bush's national energy policy, other fusion research projects -- at Princeton, other universities and Energy Department labs -- will get higher priority. He would not specify how much new funding Bush will seek, saying he will do so Monday when announcing his department's proposed budget.

Fusion, the process that powers stars, involves slamming very small atoms such as forms of hydrogen together at extremely high temperature and pressure. When the atoms fuse, or bond, they release energy that could be captured and turned into electricity.

The Princeton lab has set world records for fusion energy production in a gymnasium-sized experimental reactor that operated from 1982 through 1997, the Tokamak Fusion Test Reactor. The lab now is conducting experiments on a next-generation reactor with a more compact design.

But so far, no fusion reactor has produced as much energy as is needed to power the giant magnets and other devices that heat up and control the atoms inside the reactor.

The international collaboration, first proposed more than a decade ago, stalled amid concerns about financing and reactor design. The United States was part of the original collaboration, which only involved Japan, Russia and Europe, but backed out about five years ago.

The reactor has since been redesigned in a configuration that should make it much cheaper to build and operate, and support in the international community appears to be growing again.

"This lab will play a major role in design and management" of the ITER project, Abraham said of the Princeton staff.

Meanwhile, experiments with their new reactor, the National Spherical Torus Experiment, will continue and could produce results that will help in designing the successor to ITER, a working fusion power plant that would be the first to contribute electricity to a power grid.

That would be fitting, said Shirley Tilghman, president of Princeton University, which manages the laboratory.

"This is where the idea of harnessing fusion to produce energy was conceived 50 years ago," she said.