WASHINGTON (Reuters) - The United States will join an international research project aimed at harnessing the power of fusion and turning it into a clean and safe source for energy, President Bush said on Thursday.

ITER, the International Thermonuclear Experimental Reactor, is a fusion research project that is already a joint operation of Britain, other European Union nations, Russia, China, Japan and Canada.

Bush said he would like to see fusion energy turned into a source for clean, safe, renewable and commercially available energy by the middle of the century.

"Commercialization of fusion has the potential to dramatically improve America's energy security while significantly reducing air pollution and emissions of greenhouse gases," Bush said.

Bush drew fire from Europeans for withdrawing the United States from the Kyoto treaty aimed at taking steps to reduce greenhouse emissions blamed for global warming.

At home, environmentalists have questioned his commitment to the environment because he wants to open Alaska's Arctic National Wildlife Refuge to drilling.

Fusion is the energy source that powers the sun. It occurs in the sun when the intense heat and pressure within the sun's core cause light atoms to collide and fuse together. This creates heavier atoms and releases energy.

But fusion energy has been hard to make on a commercial scale. ITER plans to build a demonstration fusion power plant.

Bush directed Energy Secretary Spencer Abraham to represent the United States at ITER meetings in February in St. Petersburg, Russia.