Scientists in Germany have successfully tested a machine that can produce energy through nuclear fusion. The Wendelstein 7–X is an experimental nuclear reactor that can control the plasma, bubbles of gas, created in such an event. Nuclear fusion occurs when atoms join togther at millions of degrees Celsius to create energy. However, this has not yet been achieved because scientists cannot control such hot plasma for a longer time. If successful such reactors could be the solution to the world's energy problems. Hydrogen, which is the main element that is needed to create such energy, can be taken from sea water. In addition, nuclear fusion does not produce any waste. It is the same process that has been producing the sun's energy for billions of years. Up to now scientists have been able to control plasma for a few minutes. The Wendelstein 7–X could control it for over 30 minutes, enough time to turn it into energy we can use. The first tests were carried out with helium. The plasma lasted only a tenth of a second, but proved that the machine works. Next, scientists will be using hydrogen to produce plasma inside a large magnet. The project, conducted by a research team of the Max Planck Institute, started in 2006 and has, up to now, cost one billion euros. Scientists have been working on nuclear fusion for decades but without success. The new breakthrough may provide us with new energy sources. Nuclear energy is currently produced through nuclear fission, where atoms are split instead of joined together. Several countries are trying to build the first fusion reactor that really works. In another project, a team of scientists is building an even larger reactor in southern France. Other, smaller reactors are being tested in the United States.

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