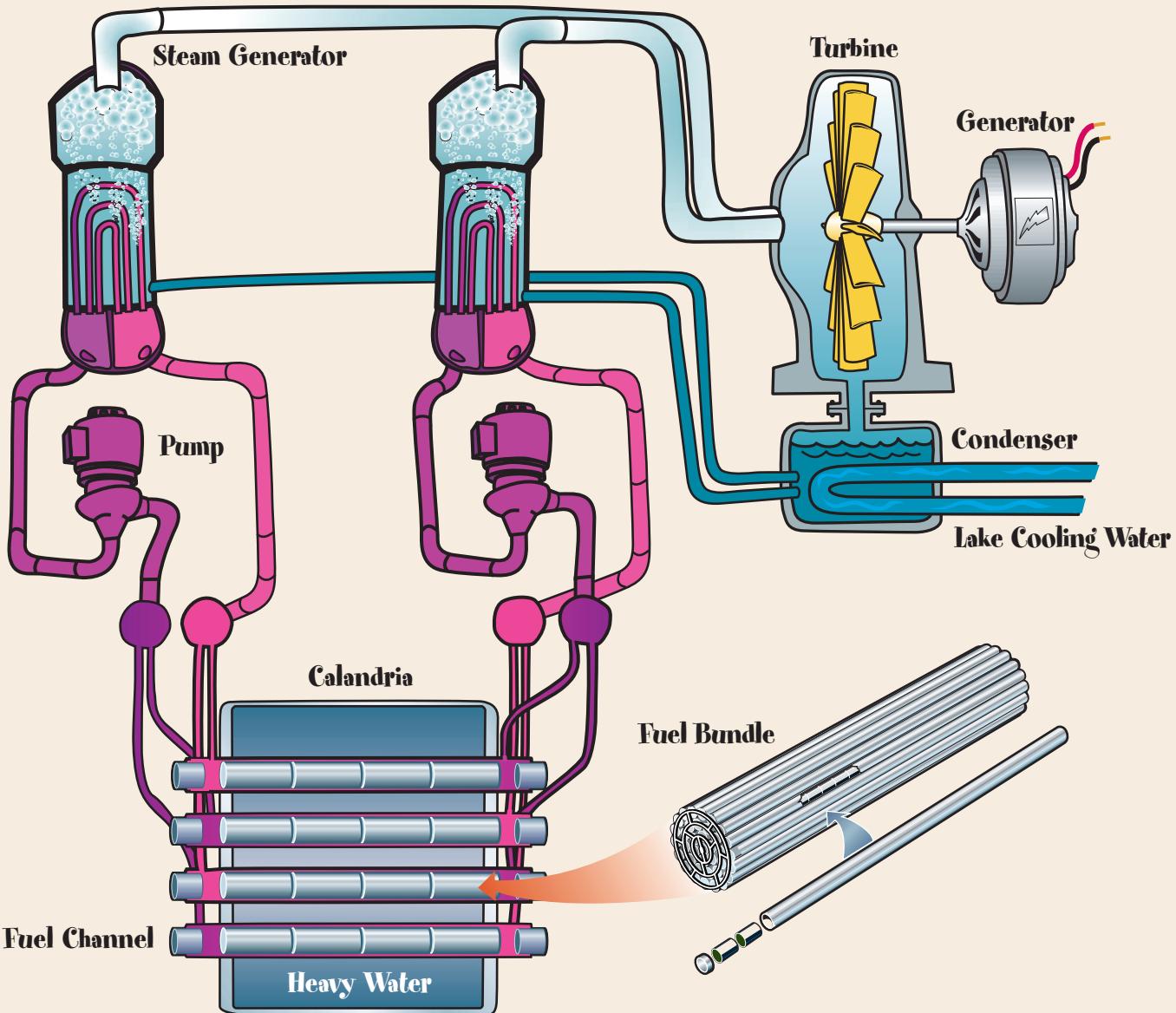


The^{*}CANDU® Nuclear Power System

*CANada Deuterium Uranium

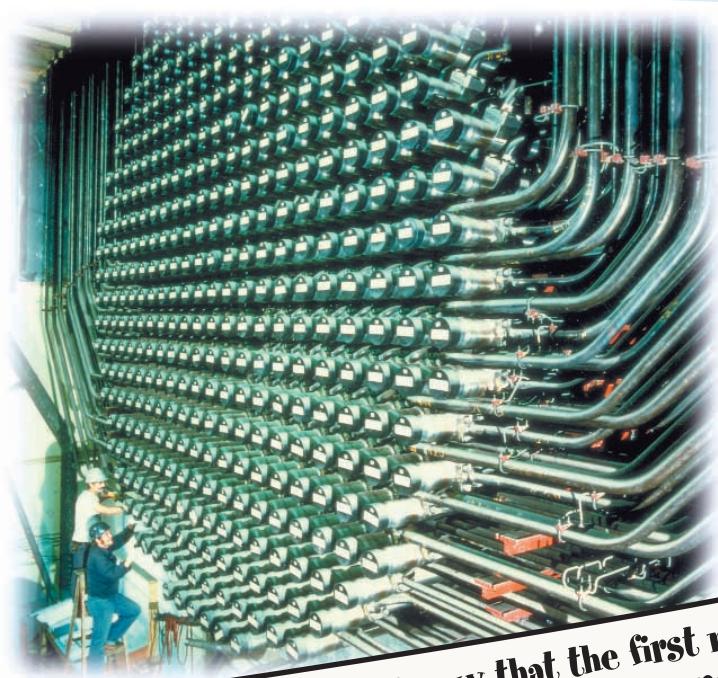


How a nuclear reactor works

Simply put, a nuclear reactor is a device, which produces heat. In a nuclear power station, the reactor performs the same work as a boiler in a coal, gas or oil-fired station. Heat is required to turn water into steam. This steam spins large turbines, which in turn drive the generators that produce electricity.

There are different kinds of nuclear reactors, but they all operate on the same basic principle. A nuclear reactor produces heat by splitting uranium atoms. This process is called a "nuclear reaction, or fission".

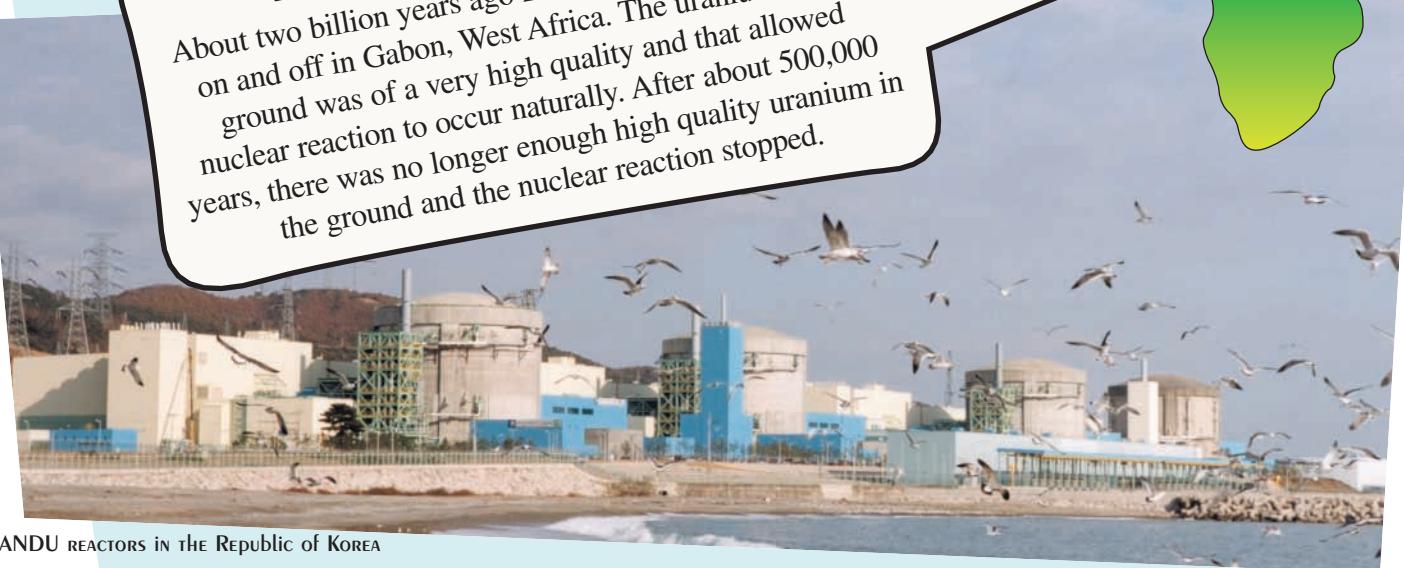
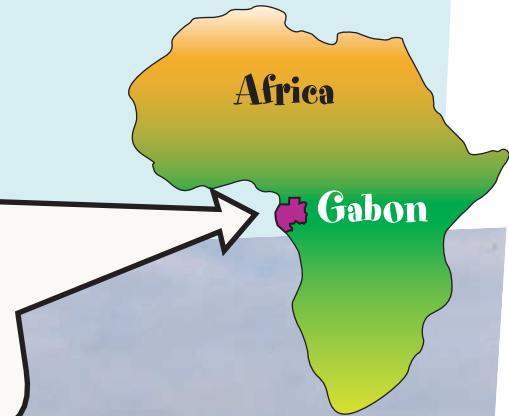
Canada has developed its own world-class reactor design known as CANDU®. CANDU stands for CANada Deuterium Uranium. It uses natural uranium as fuel and deuterium oxide or "heavy water" to assist the fission process. Heavy water is a rare, but natural form of water. It is the key ingredient in the fission process since its properties assist in maintaining a continuous nuclear reaction.



CANDU fuel is made from uranium that is naturally radioactive. Small amounts of uranium can generate large amounts of energy in the form of heat. The uranium is mined, refined and made into solid ceramic pellets (two pellets are the size of an AA battery). The pellets are put in metal tubes, which are welded together to form a fuel bundle that weighs around 23 kg. The bundle is about the size of a fireplace log and can provide enough energy for an average home for 100 years.

Did you know that the first nuclear reactors were not man-made?

About two billion years ago 21 nuclear reactors operated on and off in Gabon, West Africa. The uranium in the ground was of a very high quality and that allowed nuclear reaction to occur naturally. After about 500,000 years, there was no longer enough high quality uranium in the ground and the nuclear reaction stopped.



CANDU REACTORS IN THE Republic of KOREA

There are over 400 nuclear power reactors around the world generating safe and reliable electricity. CANDU reactors are located on four continents. In Canada, CANDU power plants provide close to 50 per cent of Ontario's electricity. These reactors are sources of clean energy since they do not generate emissions that cause smog, acid rain or climate change.

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