



Generating Reliable, Efficient Energy at Calvert Cliffs Nuclear Power Plant

Constellation Energy's Calvert Cliffs Nuclear Power Plant is one of more than 100 nuclear power plants in the United States, which together, generate a fifth of all the electricity used in the United States. Calvert Cliffs produces enough energy to power about a third of Maryland's homes and business. Using few natural resources, nuclear power plants generate electricity efficiently at a low cost to electricity customers.

All nuclear power plants rely on uranium fuel to make electricity. Uranium fuel pellets produce heat through a process called fission – the splitting of atoms in a chain reaction – inside a nuclear reactor. The fission process produces enough heat energy to make steam, turn turbine fan blades and create electricity.

Nuclear fuel is an extremely efficient energy source, and the nation's largest source of pollution-free electricity. One uranium pellet about half an inch long provides energy equivalent to 1,780 pounds of coal, 149 gallons of oil or 17,000 cubic feet of natural gas.

Because nothing is burned in the atomic reaction, no greenhouse gases are produced, making the energy produced at Calvert Cliffs and at all nuclear plants clean-air energy.

The nuclear fuel used at Calvert Cliffs and at all nuclear power plants differs significantly from uranium used in nuclear weapons. Nuclear energy fuel uses only about four percent fissionable uranium, whereas a nuclear weapon uses 100 percent fissionable uranium. Because of this difference, nuclear power plants cannot explode.



Staff at Calvert Cliffs created wetlands to support the health of the Chesapeake Bay.

Working with the Chesapeake Bay

Like all U.S. nuclear power plants, Calvert Cliffs is designed with multiple barriers and safety systems to isolate radioactive materials effectively from the environment, plant personnel and the public. Calvert Cliffs was built to work in harmony with the Chesapeake Bay.

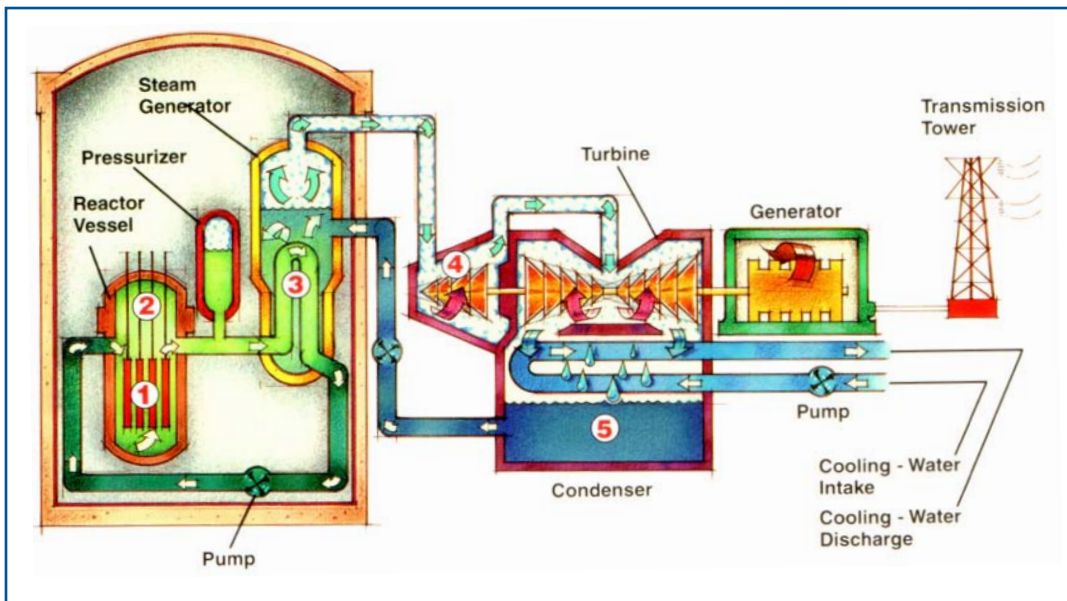
Water from the Chesapeake Bay cools Calvert Cliffs' non-radioactive steam system. Separate system loops ensure that water inside the reactor does not come in contact with water in the steam system or the cooling system. Animals and marine debris are kept out of the cooling system with screens and water sprays. Employees continually monitor the system, watching for marine life.

Water returns to the Bay with only one difference: the water is about 10 degrees warmer than it was at the bottom of the Chesapeake. Because water on the surface also tends to be about 10 degrees warmer than water at the Bay floor, the water cycling through Calvert Cliffs' cooling system is returned to the Bay's surface.

Monitoring, controlling a reliable energy source

From nuclear energy to nuclear medicine, radiation is used to benefit society in many ways. Radiation, like that created in nuclear medicine and nuclear energy, is also common in nature, from the sun, soil and the earth itself. Man-made radiation sources are continually monitored and constantly controlled through strict standards set by the U.S. Environmental Protection Agency and enforced by the U.S. Nuclear Regulatory Commission. Constellation Energy monitors radiation with standards even stricter than any government agency.

Constellation Energy meets not only the letter but also the spirit of the law and works continually with federal regulators to keep radioactive material contained and secure at Calvert Cliffs. The team uses multiple, redundant safety systems so that the plant continues to generate electricity safely, reliably and efficiently for Constellation Energy customers in Maryland and across the country.



Simplified schematic shows only one steam generator.

Media

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