Our greatest energy source — our people

Every Cook employee puts safety first.

Highly skilled control room operators monitor the plant 24 hours a day.

The Environmental staff safeguards the natural beauty around us.

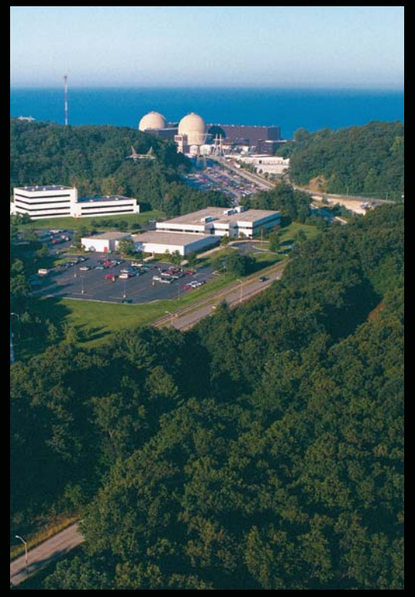
An Engineering staff of more than 200 employees ensures equipment reliability.

A large, well-equipped Security force vigilantly protects our facilities.

Cook employees are also leaders in the community.

More than 1,400 Cook employees make sure you have electricity the instant you flip the switch.

Cook Nuclear Plant — a safe, reliable, efficient source of electricity.



Cook Nuclear Plant is located along the shores of Lake Michigan in Bridgman, Michigan. It is owned and operated by Indiana Michigan Power (I&M), a unit of American Electric Power (AEP) that is one of the largest generators of electricity in the United States. Cook Plant is an important part of AEP's diverse energy mix. Its two units have the capacity to generate millions of kilowatts of electricity without emitting any greenhouse gases.

This brochure explains how more than 1,400 highly trained Cook employees make electricity every day.

Quick Facts

- The plant was named after the late Donald C. Cook who retired as AEP chairman in 1976.
- Construction began in March 1969 on a 650-acre site along Lake Michigan. It cost $1.3 billion to build both units.
  - Unit 1 began commercial operation on August 23, 1975. It is licensed to operate until October 25, 2034.
  - Unit 2 began commercial operation on July 1, 1978. It is licensed to operate until December 23, 2037.
- Cook Plant uses two pressurized water reactors to generate electricity. To fuel the reactors, the plant uses uranium dioxide, enriched with Uranium 235. One tiny uranium fuel pellet provides as much energy as almost one ton of coal, 149 gallons of oil, or 17,000 cubic feet of natural gas.
- The plant has the capacity to generate enough energy to meet the industrial, commercial and residential needs of a city of 1.25 million people.
- Cook is the largest taxpayer in the county, paying state and local taxes of approximately $13.5 million annually.

If you need more information about the AEP Cook Nuclear Plant and nuclear power, contact:

Cook Energy Center

One Cook Place
Bridgman, Michigan 49106
(800) 548-2555
E-Mail: cookinfo@aep.com
www.cookinfo.com

Or visit these Web sites:

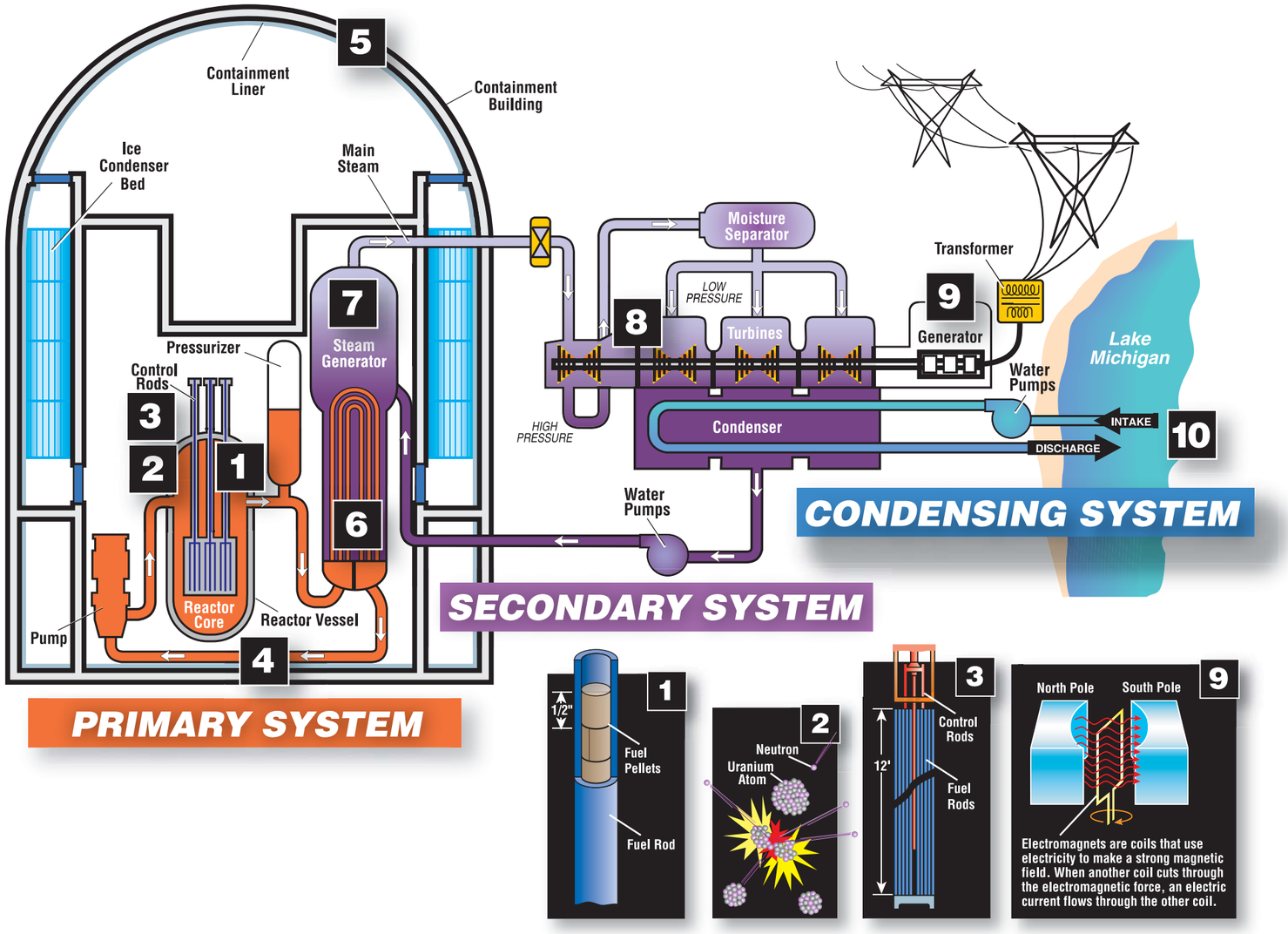
- www.aep.com
- www.nei.org

AEP INDIANA MICHIGAN POWER

A look inside the Cook Nuclear Plant to see

How we make electricity

From tiny uranium pellets to giant transformers… this is how it works.



PRIMARY SYSTEM: Splitting atoms releases incredible power.

1. **Uranium is our fuel.** Enriched uranium pellets fill the metal fuel rods. These rods are placed in the reactor core.
2. **Fission releases tremendous energy.** The uranium pellets are made of billions of atoms. Each atom contains a nucleus that consists of protons and neutrons. During fission, when a uranium atom splits, it releases neutrons that hit and split other uranium atoms. When more neutrons are released than absorbed in other atoms, the fission becomes self-sustaining. This is called a chain reaction. The energy from the splitting of atoms produces tremendous heat.
3. **Control rods stop and start fission.** Control rods are made of materials that absorb neutrons. When they are inserted into the reactor core, they stop the chain reaction by absorbing the extra neutrons. When the control rods are removed, the extra neutrons resume splitting the atoms and the fission process begins again.
4. **Boric acid also controls fission.** Boric acid, which is dissolved in the primary system water, also absorbs neutrons. Cook can also control the fission by changing the concentration of boron in the water.
5. **Concrete and steel protect us from radiation.** Radioactivity is released during the fission process. The containment building's thick concrete and steel walls shield the public from radiation.
6. **Thousands of gallons of water absorb the heat from the fission.** The primary system is pressurized so water flowing through the pipes will not boil.

SECONDARY SYSTEM: We use that incredible energy to make electricity.

7. **Heat transferred from the primary system pipes to the secondary system pipes changes water into steam.** Heat, not water or radioactivity, passes between these closed-loop systems.
8. **The steam in the secondary system turns the turbine fan blades.** The turbine shafts are connected to the rotor that also turns inside the generator.
9. **Electromagnetism makes electricity.** As the generator rotor turns, coils of wire spin in a magnetic field. This produces electricity in an outer set of coils. The electricity flows to a transformer. The transformer increases the voltage so the electricity can travel long distances.

CONDENSING SYSTEM: We turn the steam back into water and the cycle repeats.

10. **Three intake pipes in Lake Michigan draw 1.6 million gallons of water per minute into a condensing system.** As the water enters the condenser, heat from the steam in the secondary system transfers to the third system. As the steam in the secondary system cools it changes to water that is pumped back to the steam generator. The condensing system water flows through two discharge pipes into Lake Michigan. This safe, efficient process produces electricity 24 hours a day, 365 days a year.