

Inquisitive Minds

“What makes things work? What is electricity? How does energy become electricity?” With the help of scientist Dr. Knowledge (Dr. K), our hosts demonstrate how to build an electromagnet with a simple wire and a magnet. To understand how appliances that don’t plug into the electric socket work, watch Dr. K’s demonstration of a battery and magnetic properties surrounding the electric charge. Visit a hydroelectric power plant. A 3D computer model of a turbine demonstrates that magnet in a coil is the same principle used in a giant generator used to power a whole city. An interview with a power line worker lets us follow electric power from the dam to our home appliances. Another example of an electromagnet is found at a metal scrap yard, as a part of the material handler’s claw. This electromagnet is powerful enough to lift a whole refrigerator. Watch it perform its vital role in sending metal shreds to the steel mill for recycling.

Learn how coal and nuclear power are both used to heat water and propel the turbine with steam. Learn of the renewable sources of energy and energy stored in biomass, by following the transfer of energy from the sun to the potato plants as well as from the sun to the solar panels to the equipment at a potato chip factory. Explore static electricity and lightning, geothermal energy, and climb inside a wind turbine at a wind farm to see the inner work of this renewable energy generator.

How does electricity get from a power plant to our houses?

A: Power plant > High voltage high-tension power lines > distribution power substation > working voltage

Energy sources explored in the video:

Solar

Wind

Geothermal

Gasoline

Biomass

Hydroelectric

Coal

Nuclear

Which of these use steam to turn the magnet in a coil?

A: Geothermal, Coal, Nuclear, Gas, Biomass fuel

Which of these have to generate the steam first?

A: Coal, Gas, Biomass fuel and Nuclear

Why isn’t static electricity harnessed as a power supply?

A: It’s unpredictable and sporadic nature.

What do you do if you see a power line on the ground?

A: Do not touch it! Call an adult and get a professional to take care of it.