

Basics of Electricity

Electricity has become an essential service throughout the United States and in many cases is taken for granted in our society. When the light switch is flipped on, we expect the light to come on instantly. If the light does not come on, the power company is criticized even though the outage is only for an occasional few minutes. Power companies take their role of supplying reliable electric service very seriously, which has resulted in the most uniform and stable power service in the world.

Electricity is essentially produced at the time it is used and delivered at the speed of light. Theoretically, when a light is turned on, a generator in the system senses the increase in load and produces the power. In reality, the voltage level may sag slightly and the frequency drops a little. These changes are sensed by very sophisticated electronic equipment, which in turn adjusts the generation to meet the customer's needs and maintain a stable power supply.

Electricity cannot be economically stored in large quantities. Batteries are practical for flashlights and automobiles, but not for larger loads such as houses and factories. Therefore, the energy for electricity is stored in the form of fuel (i.e. coal, gas, or oil) or in the form of water in a reservoir to produce hydroelectric power.

The power that is produced flows to the load over the "path of least resistance." Contractual arrangements are made between utilities to account for the power and meters are installed to measure the flow of power, but the power will always flow according to the laws of physics rather than the contractual path.

Source: Colorado Association of Municipal Utilities (CAMU)