

ELECTRIC POWER GENERATION

Electric generation facilities can be considered in three basic categories, or types, as follows:

Thermal electric facilities produce electricity by using heat energy to power (or turn) a generator. The heat can be produced by burning a fossil fuel, such as coal, natural gas, or oil, or it can be produced by using nuclear reactors. The heat produced usually makes steam in a boiler which then turns a turbine-generator to produce the electricity. Some smaller plants use motors or engines to turn a generator or use hot gas directly into a jet engine type turbine-generator.

Hydroelectric facilities produce electricity by allowing water to pass through a hydraulic turbine, which then turns the attached generator. Generally the water is stored in large reservoirs during heavy runoff seasons and then generates electricity when released for irrigation, municipal, power, recreation, or environmental uses. Hydroelectric facilities provide high reliability, quick electrical response to changing loads, and valuable reserves. However, its energy production can be limited by the size of reservoir, required water release patterns and needs, and climatic conditions.

Renewable electric facilities produce electricity using non-fossil and non-nuclear sources, such as water, wind, sunlight, wood, or biomass fuel to produce electricity in many ways. Water is the most common, as discussed above. Wind driven turbines are becoming more economical and widespread in their use. Sunlight can be used to make steam, as in thermal units discussed above, or used directly in photovoltaic cells to produce electricity without heat or steam. These solar techniques are still relatively costly, but coming down in cost as new materials and technologies develop.

Source: Colorado Association of Municipal Utilities (CAMU)