

Lewis Electric Update



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Facts about Electricity !!!

Electricity and Utilities -

How much electricity do electric utilities generate ?

Electric utilities generated 2,201,007 million kilowatthours of electricity during 1990. Coal was the leading generating fuel, supplying 56.5% (1,242,883 million kilowatthours) of the total. Nuclear fuels produced 24.5% (540,098 million kilowatthours). Petroleum supplied 5.1% (111,701 million kilowatthours). Gas accounted for 10.5% (66,587 million kilowatthours). Hydro accounted for 3% (66,571 million kilowatthours).

In an effort to utilize all energy sources, utilities are also providing customers with electricity produced by renewable energy resources, including wind, solar, and geothermal. While their use is being expanded, these energy sources provided only .4% of the electricity supply (8,985 million kilowatthours).

How much raw fuel is needed to make a kilowatthour of electricity

The amount of fuel needed to produce 1 kilowatthour of electricity (the amount of electric energy supplied to an electric circuit steadily for one

hour) in 1990 was 0.979 pounds of coal, or 0.070 gallons of oil, or 10.5 cubic feet of gas.

How much fuel do electric utilities use to generate electricity?

In 1990, electric utilities consumed 608,559 thousand tons of coal, 186,653 thousand 42-gallon barrels of oil, and 2,418,822 million cubic feet of gas.

How has electricity generation changed over the last 20 years?

Electric utility generation has increased 86% in the last 20 years. That reflects the appeal of electricity's efficiency and the number of new electric technologies which have been developed, as well as population growth.

How is Electricity produced ?

Electricity is produced in a generating plant. The simplest type of generator has two main components - a rotating magnet (the ROTOR) which turns inside the stationary coils of copper wire, (the STATOR). When the rotor rotates, it creates a magnetic field, which in turn, generates a flow of current through the copper coils of the stator. Generating plants must use some form of energy or fuel to turn the rotor. Most electricity is produced by burning fossil fuels such as coal, oil, and natural

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gas. These fuels are burned in a boiler to turn water into steam. Under high pressure, the steam turns the blades of a turbine that spins a generator, producing electricity. In a nuclear plant, steam is produced by controlled splitting of uranium atoms in a process known as nuclear fission. In a hydroelectric power plant, water provides the energy to turn the turbine blades.

How does electricity move from the power plant to customers?

Electricity moves through a complex transmission system. Transformers are located in substations near electric generating plants. In much the same way that a pump builds up pressure of water in a hose, transformers step up the electricity voltage to levels ranging from 69,000 to 765,000 volts. The voltage level depends on the distance the electricity must travel and the amount desired. From the transformers, electricity enters the transmission system. the transmission lines, which consist of heavy cables strung between tall towers, carry power to the point where it is needed. Electricity travels at nearly the speed of light, arriving at its destination at almost the same moment it is produced. Sending electricity to various points of use may involve travel through transmission lines of different voltage levels. Large lines carry electricity in much the same way that long hoses carry water under great pressure. Step-down transformers located in distribution substations reduce the voltage of the electricity to lower levels so it can be carried on smaller cables or distribution

lines. Smaller transformers on poles or underground further reduce the voltage so that it can be used by residential customers. Homes and farms require 120 or 240 volt service. Industrial customers using larger amounts of power require higher service voltages.

How many miles of electric power transmission lines are operated by utility companies?

The number of circuit miles of in-service overhead electric line of 22,000 volts and above owned by electric utilities is 497,232 miles.

How many people are employed by electric utilities?

A total of 510,595 workers were employed by electric utilities at the end of 1990 in a variety of jobs, from repairing power lines, to providing information to electric customers, to constructing new power plants.

How much electricity do customers use?

Although residential customers represent by far the largest customer class, they consumed just 32.4% of the electricity sold. Conversely, industrial customers, who represent only a small percent of the total number of customers, used 34.8% of electricity sold. Commercial customers used 29.6%, with the remaining 3.2% used by other types of customers.

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