100 kWh

100 kWh

?kWh,?[4][5][6],[7],[3]?

kW?hkW h,?(IEEE)(ASTM),,(?),,[8][9]?,(NIST),kWh[10]?

?(GW?h),,1? = 1,000? = 1,000,000? = 3,600,000,000 = 3.6()= 3.6()??,?(W?h,Whr),?[12]?

A kilowatt-hour (unit symbol: kW?h or kW h; commonly written as kWh) is a non-SI unit of energy equal to 3.6 megajoules (MJ) in SI units, which is the energy delivered by one kilowatt of power for one hour. Kilowatt-hours are a common billing unit for electrical energy supplied by electric utilities. Metric prefixes are used for multiples and submultiples of the basic unit, the watt-hour (3.6 kJ).

The kilowatt-hour is a composite unit of energy equal to one kilowatt (kW) sustained for (multiplied by) one hour. The International System of Units (SI) unit of energy meanwhile is the joule (symbol J). Because a watt is by definition one joule per second, and because there are 3,600 seconds in an hour, one kWh equals 3,600 kilojoules or 3.6 MJ.[1][2]

The hour is a unit of time listed among the non-SI units accepted by the International Bureau of Weights and Measures for use with the SI.[6]

An electric heater consuming 1,000 watts (1 kilowatt) operating for one hour uses one kilowatt-hour of energy. A television consuming 100 watts operating continuously for 10 hours uses one kilowatt-hour. A 40-watt electric appliance operating continuously for 25 hours uses one kilowatt-hour.

Electrical energy is typically sold to consumers in kilowatt-hours. The cost of running an electrical device is calculated by multiplying the device"s power consumption in kilowatts by the operating time in hours, and by the price per kilowatt-hour. The unit price of electricity charged by utility companies may depend on the customer"s consumption profile over time. Prices vary considerably by locality. In the United States prices in different states can vary by a factor of three.[11]

While smaller customer loads are usually billed only for energy, transmission services, and the rated capacity, larger consumers also pay for peak power consumption, the greatest power recorded in a fairly short time, such as 15 minutes. This compensates the power company for maintaining the infrastructure needed to provide peak power. These charges are billed as demand changes.[12] Industrial users may also have extra charges according to the power factor of their load.

Major energy production or consumption is often expressed as terawatt-hours (TWh) for a given period that is often a calendar year or financial year. A 365-day year equals 8,760 hours, so over a period of one year, power

of one gigawatt equates to 8.76 terawatt-hours of energy. Conversely, one terawatt-hour is equal to a sustained power of about 114 megawatts for a period of one year.

In terms of human power, a healthy adult male manual laborer performs work equal to about half a kilowatt-hour over an eight-hour day.[14]

A kilowatt is a unit of power (rate of flow of energy per unit of time). A kilowatt-hour is a unit of energy. Kilowatt per hour would be a rate of change of power flow with time.

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