

Solar Energy Consumer

One kilowatt-hour (kWh) equals the amount of electricity needed to burn a 100 watt light bulb for 10 hours.

A 1 kilowatt home solar system installed costs about US\$9000 (before any rebate programs). Prices up to \$15,000 are also possible as are lower prices depending upon a) the kind of PV System, b) country of purchase c) how the system is purchased and d) the surface to which the system is attached. Convert from US dollars to your local currency to find an approximate equivalent cost in your country.

A 1-2 kilowatt (1000-2000 watts) system takes between one and two days to install.

For an installed system costing \$9 per watt peak, this equates to about 25-30 US cents per kilowatt hour in a sunny climate.

The solar module (also called a "solar panel") itself accounts for between 40-50% of the total cost of an installed solar energy system.

A sunny location (i.e. Los Angeles, USA) receives approximately 5.5 hours of sunlight on average throughout the year.

A cloudy location (i.e. Hamburg, Germany) receives approximately 2.5 hours of sunlight on average throughout the year.

The typical main components of a solar home system are the solar module, an inverter, a battery, a charge controller (sometimes known as a regulator), wiring and support structure.

A typical silicon cell Solar Module will have a life in excess of 20 years. It's electric generating capacity may degrade gradually between 0-20% over its useful life.

Although, solar modules are often warranted for 20 years or more, the warranty on the overall solar energy system, inclusive of the other components, is usually 5 years or less.

A Solar Energy System can provide electricity 24 hours a day. How? The solar electric modules are combined with batteries in one integrated energy system.

Yes, Solar Modules *do* produce electricity even on cloudy days, some 10-20% of that on sunny days (it can vary outside this range though). Solar Systems not connected to the electricity grid are "sized" to take account of this variation, Systems attached to the electricity grid balance their overall energy supply with supplies from the electricity grid.

1 kilowatt equates to 1000 watts.

A 1 kilowatt peak Solar System will generate around 1,600 kilowatt hours per year in a sunny climate and about 750 kilowatt hours per year in a cloudy climate.

A typical high power solar module generates 100 Watts and measures about 2 feet by 4 feet.

A 1 kilowatt Solar System (about 10-12 solar modules) requires about 100 square feet of installation area. Double the square feet area, if you are using thin film technology modules (this technology represents about 10% of all modules sold).

You can buy multi colored solar cells, but they cost more and deliver a little less energy. However, Architects prefer them.

Are you planning to buy a solar energy system? You are not on your own. Industry estimates suggest 100,000 systems were installed in the USA since 1997. Live in Germany or Japan? We think even more were installed in those countries.

Monthly average residential consumption of electricity in the United States in 1999 was 866 kilowatt hours. (Source: US DOE)

Average monthly residential electricity bill in 1999 in the United States was \$70.68. (Source: US DOE)

Consumer Appliances - Annual kilowatt hour usage

Highest electricity consuming equipment in the US in order of usage: electric ovens, microwaves, central air conditioning. Electric oven kilowatt hour consumption is twice that of air conditioning. Fastest growing consumer product: computers.

A 12 cubic feet Refrigerator uses about 800 kilowatt hours per year

A 500 Watt portable heater uses about 150 kilowatt hours per year

A 3 ton Central Air Conditioning system uses about 2500 kilowatt hours per year (assuming 5 months summer usage)

A clothes dryer (4 hours week) uses about 1000 kilowatt hours per year

10 gallon fish tank with light and heater uses 400 kilowatt hours per year

Lighting for 5 rooms uses about 1000 kilowatt hours

100 Watt light bulb (for 5 hours a day) uses 180 kilowatt hours a year. Fluorescent lights use about 1/4 of the energy of a regular light bulb

A Color Television (6 hours a day) uses 600 kilowatt hours a year

A TV (3 hours a day) uses 200 kilowatt hours

A Video recorder (3 hours a day) uses 75 kilowatt hours

A personal computer (10 hours a week) uses 150 kilowatt hours. A small laser printer uses 90-100 watts while printing, and 5 watts when electricity connected, but not printing



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