Expanding the area of what is possible
In Track & Field Distance Running & Competent Self-Care in medicine and psychology
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The ETG info
electricity production

As you continue to acquire and apply more information you continue to expand the area of what is possible.

Data-less conclusions founded upon faulty assumptions are the mother of all screw-ups. They lead to human belief systems that quickly get set in stone.

Put data ahead of dogma. Follow the data -not- the crowd.

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Solar & Wind

Amount Of Electricity Needed to Be Produced By Solar -----

--- A kilowatt hour is an amount of force (1000 watts) passing through your house/apartment's electric meter over the period of an hour.
--- One kilowatt-hour (kWh) equals the amount of electricity needed to burn a 100 watt light bulb for 10 hours.
--- A 100 watt light bulb turned on for 10 hours.....uses one kilowatt hour of electricity.
--- [10] light bulbs [each 100 watts] turned on for 1 hour......uses one kilowatt hour of electricity.
--- a Megawatt is 1,000,000 Watts......a Gigawatt is 1000 Megawatts
--- A typical household in the U.S. uses about 870 kilowatt-hours of electricity......per month.

...........this is about 30 kilowatt-hours of electricity per day
--- An average size electric home in Austin, Texas [lots of air conditioning] uses about 1500 kilowatt hours per month

...........this is about 50 kilowatt-hours of electricity per day
--- Solar panel system that produces 30 kilowatt-hours per day would be sufficient to provide 100% of the electricity for a typical household in the U.S.
--- Solar panel system that produces 50 kilowatt-hours per day would be sufficient to provide 100% of the electricity for An average size electric home in Austin, Texas

--- generally a 1 kilowatt solar panel system produces 1 kilowatt-hours of electricity during each hour that the sun is shining.
--- If the sun is shining 6 hours/day on average, a 1 kilowatt solar panel system will produce 6 kilowatt-hours of electricity.
--- If the sun is shining 6 hours/day on average, a 5 kilowatt solar panel system will produce 30 kilowatt-hours of electricity.
--- A typical household in the U.S. uses about 30 kilowatt-hours of electricity per day
--- generally speaking, for most months of the year, a 5 kilowatt solar panel system is sufficient to supply ~100% of the electricity needed for most homes in the United States (costs $30,000 - $40,000 in 2004, however many/most States have rebate programs, as do many city utility companies......which may cut the cost by 45% - 75%). Over the course of about 7 - 10 years, the system may pay for itself in the form of not having an electric bill, and/or being paid by your local utility company for excess electricity your house produces.

--- A typical solar panel generates 100 Watts and measures about 2 feet by 4 feet [takes up 8 - 10 square feet]
--- a 5 kilowatt solar panel system will take up about 500 square feet of roof space
--- most normal size houses in the U.S. have at least 900 square feet of roof space
--- you'll need about 100 square feet of roof space ---for every kilowatt--- that you'd like to have for your house.

General Examples of Quantity of Electricity Use -----

--- A 12 cubic feet Refrigerator uses about 67 kilowatt hours......per month
  -- about 2.2 kilowatt hours......per day [about 100 watts per hour]
--- A Color Television (in use 6 hours a day) uses about 50 kilowatt hours......per month
  -- about 1.7 kilowatt hours......per day
--- A personal computer (in use 10 hours a week) uses about 13 kilowatt hours......per month
  -- about 0.5 kilowatt hours......per day
--- energy use is [10 kilowatts per hour] from an air conditioner run for 7 hours to maintain 76 degree temp in the house
--- Florida, in June, house uses about 60 kilowatts per day

Cost Of Electricity Production ---
By way of oil/gas......Americans spend 10 cents of every dollar on energy
--- Oil/Gas driven utility companies charge 5 to 10 cents per kilowatt hour [ and about 40 cents during summer peak hours]
--- wind power costs about 2.7 cents per kilowatt hour
--- oil/gas energy in California, Montana costs about $25 - $30 per megawatt hour
--- wind energy from west Texas windmill farms costs about $27 per megawatt hour

Solar Panels ---
--- Photons [light particles from the sun] strike a photovoltaic [PV] cell [a solar panel], many photons are absorbed, and cause movement of electrons that are associated with the silicon atoms in the PV cells.
--- efficiency of most solar panel systems......4 - 16% of sunlight is converted to electricity.

Solar "Shingles" -----
--- shingles produce about 3 kilowatts per home = about 75% of electricity needs

Large Scale Solar/Wind Projects -----
--- need about 350 megawatts for every 350,000 homes
--- Stirling Dish Technology [Solar power plant]......designed to provide power on an industrial scale
  -- focuses sun's rays to heat tubes filled with synthetic oil, the heated oil runs steam turbines
  -- thermal plant built in Barstow, California
  -- generates 354 megawatts, enough for about 350,000 homes
--- Texas uses ~60,000 megawatts during the summer
--- Austin, Texas uses 10,000 megawatt hours per year
--- A Landfill electric plant in Los Angeles produces enough electricity from methane to power 100,000 homes
--- West Texas windmill plants produce 760 megawatts when wind blows at 28 mph