

(1) A 60-watt bulb lit for a year takes how many barrels of oil?

A barrel of oil is 42 gallons, about 150 liters, or 120 kg. At 10^4 calories/gm, our round number universal heat of combustion, the barrel is worth 5×10^9 J. Used to generate electric power with 30 percent thermal efficiency, it yields 1.5×10^9 J, which is 50 watt-years. One barrel will just about do it.