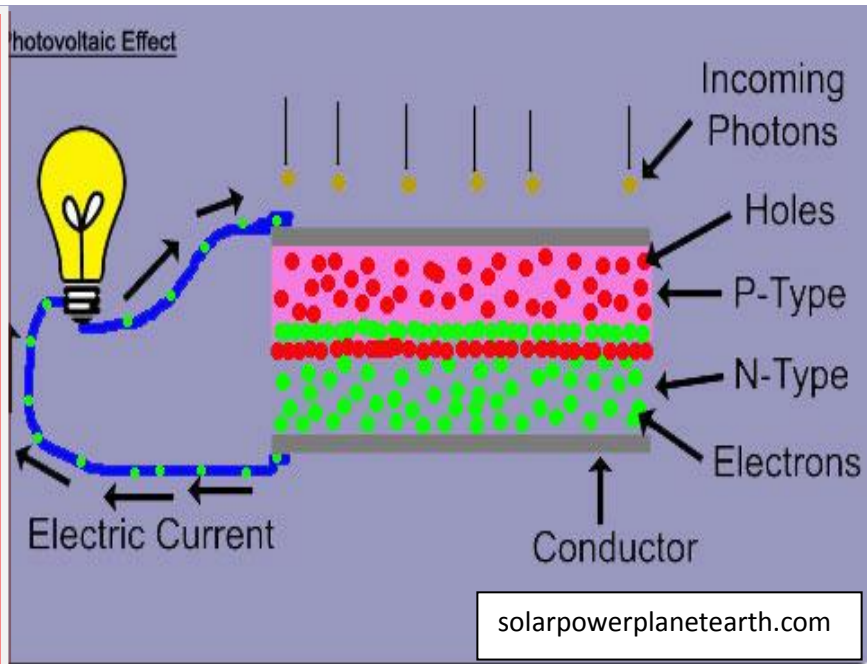Photovoltaic Effect

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THE PROBLEM:

We want to electrify with photovoltaic panels a cottage without electric grid connection with the following table of appliances:

Appliances	Power (W)	Hours of daily use
2 Lights dining room	30	5
3 lights room	20	2
2 lights bath room	15	1
Microwave oven	600 W	0,5
TV	84W	5
Fridge	60 W	7
Laptop	50 W	2
Water pump	60W	1

We have solar panels of 1mx1m, with an efficiency (ε) of 12% in a region where the solar power is 620 W/m^2 and the local HSP= 5h .

Calculate : 1º) The global consumption per day

2º) What percentage of total consumption corresponds to the appliance that consumes most?

3º) The number of panels to be installed in the cottage