

GROUP No.: 6

Batch: P3-2

Date: 20/11/2023

Lecture No.: L9

Template for Energy Audit and Solar Installation Activity

Statement Given:

Task 1: Calculate the total energy consumption for a month for your home and share different measures that you will adopt to reduce your energy consumption.

Task 2: Estimate the cost of solar installation to meet your energy requirement.

Evaluation Criteria:

1. Calculations of energy consumption for different appliances
2. Adaptable ideas for reducing energy consumption
3. Cost estimation

Performance- 15 Marks

Submission-10 Marks

Team

Sr No	Roll No	Name
1	26	Charu Malpani
2	27	Chirayu Mitha
3	28	Devansh Pant
4	29	Devanshi Pullman
5	30	Dharmik Chandel

TASK1 - Energy Consumption Calculations:

Equation for calculating energy:

$$\text{Energy (kWh)} = (\text{Power (watts)} \times \text{time} \times \text{number of appliances}) \div 1000$$

Appliance	Power (W)	Number of appliances	Time used (hour)	Energy (kWh)
Ceiling Fan	80W	2	5	$(80 \times 5 \times 2) \div 1000 = 0.8$ kWh
Desktop computer	200W	1	6	$(200 \times 6 \times 1) \div 1000 = 1.2$ kWh
Laptop	65W	3	12	$(65 \times 12 \times 3) \div 1000 = 2.34$ kWh
LED bulb	10W	5	10	$(10 \times 5 \times 10) \div 1000 = 0.5$ kWh
Tube light	20W	5	20	$(20 \times 20 \times 5) \div 1000 = 2$ kWh
Television	200 W	2	12	$(200 \times 12 \times 2) \div 1000 = 4.8$ kWh
Washing Machine	400W	1	2	$(400 \times 2 \times 1) \div 1000 = 0.8$ kWh
Microwave	1000W	1	0.5	$(1000 \times 0.5 \times 1) \div 1000 = 0.5$ kWh
Refrigerator	400W	1	24	$(400 \times 24 \times 1) \div 1000 = 9.6$ kWh
Geyser	2000W	1	1	$(2000 \times 1 \times 1) \div 1000 = 2$ kWh
Total		22	92.5	23.54 kWh

Total energy used by all of the Appliances : 23.54 kWh

Total energy consumed on average in a Month : 706.20 kWh

Measures to reduce your energy consumption:

Measures you will implement to reduce your energy consumption	
1	Don't use air conditioner for longer periods.
2	Use heater and microwave sparingly.
3	Use ceiling fans.
4	Switch off tubelights & bulbs when not in use.
5	Buy electrical appliances with a 5 star BEE rating only.

TASK 2 - Cost Estimation for Solar Installation

Use provided excel sheet

Load Calculation:

182700 watt hr

Number of Panels and Batteries:

No of panels: - ~~24~~ 8994 108

No. of batteries: - 197

Cost for Solar Installation:

4387571.767

50% is given by government.

Reflections on activity:

We can use energy from renewable resources.
We should use it wisely by considering all the
factors of the world.