K J Somaiya College of Engineering
A Constituent College of Somaiya Vidyavihar University
Course: Introduction to Project Based Learning

GROUP No. : 4 **Batch:** P4-1

Date: 21 | 11 | 23 **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

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TASK1 - Energy Consumption Calculations:

Equation for calculating energy:

- Energy (kWh) = (Power (watts) x time x number of appliances) ÷ 1000

Appliance	Power (W)	Number of appliances	Time used (hour)	Energy (kWh)
Ceiling Fan	80W	2	5	(80 x 5x 2) ÷ 1000 = 0.8 kWh
Desktop computer	200W	2	2	0.8 kWh
Laptop	65W	1	6	0.39 kWh
LED bulb	10W	6	10	0.6 kWh
Tube light	20W	6	10	1.2 kWh
Television	200 W	1	4	0.8 kWh
Washing Machine	400W	1	2	0.8 kWh
Microwave	1000W	1	1	1 kWh
Refrigerator	400W	1	24	9.6 kWh
Geyser	2000W	1	1	2 kwh
Total				17.19 kWh

Total energy used by all of the Appliances : 17.19 **kWh**

Total energy consumed on average in a Month : 515.7 **kWh**

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Measures to reduce your energy consumption:

	Measures you will implement to reduce your energy consumption
1	Maximize natural light
2	Switch to LED bulbs
3	Consider installing renewable energy sources
4	Make efficient use of natural ventilation
5	Turning off the appliances when not in use.

TASK 2 – Cost Estimation for Solar Installation

Use provided excel sheet

Load Calculation: 17.19 KWh

Number of Panels and Batteries:
No of Panels = 15
No of Batteries = 7

Cost for Solar Installation: Rs 6,54,881

Reflections on activity: The activity highlighted solar energy's potential for environment impact reduction while revealing our household's excessive energy consumption and its sustainability implication. This prompted consideration of efficiency strategies and solar panel adoption.

Riya