

Workshop Exercise: Energy Efficiency

1. A portion of the electricity bill is given below:

Tariff Description	Reading Type	Meter Number			Usage kWh	Billed Days
			Current	Previous		
Domestic	Normal reading	999: 1	080000	079880	120	30

Using the applicable tariff rates for residential customers in your country, calculate the total bill (exclusive of taxes etc).

2. Compare the yearly savings of using a refrigerator with an energy rating of 380kWh per year to a refrigerator of 600kWh per year.
3. Assess the Workshop building and list all energy efficiency measures that could be implemented to lower energy consumption. Specific focus on:
 - Lighting
 - Physical building features and environmental influence
 - Air-conditioning
 - Refrigerators and freezers
 - Other Power Appliance's
4. The owner of a grocery shop/home has complained that he is getting high electricity bills and thus wants to lower consumption. Discuss how will you carry out an energy audit and also state your recommendations at the end. State the series of steps you will conduct as part of the energy audit and the equipment, time-frame, etc. Using the following information and taking your own assumptions where necessary, compile a presentation. Present in a group. Mention practical and economical solutions as owner has a limited budget.

Information provided:

- There are 20 x 40W incandescent lamps in the premises. 5 lights are ON whole night. There are no sensors, etc. He feels there is a lot of brightness in some areas.
- There is a 10-year-old chest freezer without any energy rating. There is a cooler to store juice, etc.
- There is an air-conditioner in the bedroom without any energy rating.
- The shop windows are on the east/west directions without any eaves and there is only a small verandah in front.
- There is space but no trees shading the house.
- The owner uses electric stove for cooking.
- The customer has painted the premises red on the outside and light blue inside.
- The customer uses instantaneous water heater as part of his household use.
- The TV has 5-star energy rating but due to thin curtains the brightness level has been set high.
- The owners boil the water using kettle every time they make tea/coffee.
- The owner does not have any idea on the ratings/current draw of many appliances.
- Most appliances are left on standby mode.
- Current energy consumption is 300units / month.