Problem of the Week
Problem B and Solution
These Rates are Shocking

Problem

Most provinces take into consideration the time of day when they charge for electricity usage. The rates they charge are often referred to as Time-Of-Use (TOU) rates. Using the sample TOU rates in the table below, answer the questions that follow.

TOU Price Period	November 1 - April 30 Time of Day	May 1 - October 31 Time of Day	TOU Rate (¢ per kWh)
Off-Peak Hours	Weekdays 7 p.m. - 7 a.m., anytime on weekends	Weekdays 7 p.m. - 7 a.m., anytime on weekends	7.4
Mid-Peak Hours	Weekdays 11 a.m. - 5 p.m.	Weekdays 7 a.m. - 11 a.m. and 5 p.m. - 7 p.m.	10.2
On-Peak Hours	Weekdays 7 a.m. - 11 a.m. and 5 p.m. - 7 p.m	Weekdays 11 a.m. - 5 p.m.	15.1

(a) Garret's family used 50 kWh on a Saturday afternoon. What would be the charge for those 50 kWh?

(b) On November 10, when would be the best time of day to run your clothes dryer?

(c) When should you avoid using your clothes dryer in the summer?

(d) What might be a better way (environmentally and financially) to dry your clothes in the summer?

(e) Ramal's family used 1180 kWh hours of electricity in one month.

(i) What is the maximum amount of money (in dollars) they could have paid for electricity that month?

(ii) What is the minimum amount of money (in dollars) they could have paid for electricity that month?

Solution

(a) The rate for any Saturday is 7.4¢ per kWh, which is \$0.074 per kWh. Therefore, the charge for 50 kWh would be $50 \times \$0.074 = \$3.70$.

(b) If November 10 falls on a weekday, the best time to run the dryer would be anytime before 7 a.m. or after 7 p.m. If November 10 falls on the weekend, you could run it anytime from Friday after 7 p.m. until Monday morning before 7 a.m.

(c) You should avoid running your dryer from 7 a.m. to 7 p.m. on weekdays, but it is most expensive to run your dryer between 11 a.m. and 5 p.m.

(d) You could hang your clothes out to dry in the summer which would have little or no cost, both environmentally and financially.

(e) (i) Ramal's family used 1180 kWh. The most they could have paid for electricity is \$0.151 per kWh. Therefore, the maximum amount they could have paid for electricity that month is $1180 \times \$0.151 = \$178.18$.

(ii) Ramal's family used 1180 kWh. The least they could have paid for electricity is \$0.074 per kWh. Therefore, the minimum amount they could have paid for electricity that month is $1180 \times \$0.074 = \$87.32$.