

Energy Management

Practical lesson 4 - Results

1.

- a) Refrigerator A: 34.83 € / year; Refrigerator B: 58.92 € / year
- b) Refrigerator A: 34.29 € / year; Refrigerator B: 58.01 € / year
- c) Simple: 3.32 years; Dual: 3.37 years

2.

- a) Solution A: 4.1 kW; Solution B: 2 kW in some hours and 1 kW in others
- b) Solution A: 3.42 € / day; Solution B: 3.17 € / day
- c) Solution A: 5.71 € / day; Solution B: 2.86 € / day

3.

- a) Lighting A: 0.60 € installation cost + 10.17 € electricity cost = 10.77 €
Lighting B: 7.25 € installation cost + 25.42 € electricity cost = 32.67 €
Lighting C: 6.45 € installation cost + 2.54 € electricity cost = 8.99 €
- b) For 8000h:
Lighting A: 4.80 € installation cost + 111.44 € electricity cost = 116.24 €
Lighting B: 14.50 € installation cost + 278.60 € electricity cost = 293.10 €
Lighting C: 6.45 € installation cost + 27.86 € electricity cost = 34.31 €
- c) For half year renting a house:
Lighting A: 0.60 € installation cost + 6.08 € electricity cost = 6.68 €
Lighting B: 7.25 € installation cost + 15.20 € electricity cost = 22.45 €
Lighting C: 6.45 € installation cost + 1.52 € electricity cost = 7.97 €
For 8000h:
Lighting A: 4.80 € installation cost + 66.64 € electricity cost = 71.44 €

Lighting B: 14.50 € installation cost + 166.60 € electricity cost = 181.10 €

Lighting C: 6.45 € installation cost + 16.66 € electricity cost = 23.11 €

4.

a)

	Final energy kWh	Primary energy kWh	Cost €
A	1,00	2,00	0,1393
B	1,11	1,12	0,0821
C	0,33	0,67	0,0464

5.

a) Max kW = 4.30

Max kVA = 4.78

Contracted power = 5.75 kVA

b) Simple tariff = 1901.66 € / year (1799.90 € from electricity and 101.76 € from 5.75 kVA contracted power)

c) Dual tariff = 1843.74 € / year (1741.98 € from electricity and 101.76 € from 5.75 kVA contracted power)

d) The shift of appliances enables the reduction of contracted power from 5.75 kVA to 3.45 kVA.

Dual tariff + appliances shift = 1753.37 € / year (1689.56 € from electricity and 63.80 € from 3.45 kVA contracted power)

Savings = 148.29 € / year compared to simple tariff and 90.37 € / year compared to dual tariff without appliances shift