



# V - ELECTRICITY RATES FOR REACTIVE ENERGY

(description based on the french system)

## 1) "TARIF VERT" RATE (ABOVE 250 kW)

By installing capacitors, you can produce the reactive energy you require yourself and reduce the cost of your electricity bill considerably.

A capacitor bank is an investment which is paid off in a few months mainly due to :

- the cancellation of the kvarh billed ("tarif vert" rate subscribers)
- the decrease in the subscribed power in kVA ("tarif jaune" rate subscribers)

For this rate, EDF bills the reactive energy for the period from 1st November to 31st March inclusive during day-tariff and peak hours directly.

This billing applies to all subscribers with a primary winding  $\text{tg } \varphi$  greater than 0.4 (or primary winding  $\cos \varphi$  less than 0.928) and is defined as follows:

- Let  $E_a$  (kWh) be the active energy consumed every month during the period and hours defined above.
- Let  $E_r$  (kvarh) be the reactive energy consumed every month during the period and hours defined above.

The quantity of the billed reactive energy  $E_r$  bill will be equal to:

$$E_r \text{ bill} = E_r - 0.4 \cdot E_a$$

The total of the bill will be :

$$E_r \text{ bill} \times a$$

(where  $a$  is the cost of the reactive energy given in the current scale).

## 2) "TARIF JAUNE" RATE (36 TO 250 kVA)

For this rate, the power is subscribed in apparent power, i.e. in KVA. Therefore, it accounts for the power factor, but the subscriber is not billed directly for reactive energy. However, if the installation has a poor power factor, the kVA subscription is increased excessively and this results in a significant increase in the fixed basic rate which may be up to 40% or even 60%.

By measuring the power factor ( $\cos \varphi$ ), it is very easy to define the reactive energy compensation requirements and reduce the kVA subscribed power considerably.