Power in AC general Can be divided into three parts.

1. Active or Real power ,P is measured in kilowatts (kW) which will power the equipment will be used for real change, such as heat or light to use Torque to drive.

2 Reactive power, Q (VAR) is the energy used to create a magnetic field.
As an intermediary in processing power in devices such as electric motors, transformers, fluorecent are either to reactive power. total power at work. But the real power of these devices are not due to reactive power, but the use of power. Therefore, if the plant has a lot of these devices demand reactive power will be increased by reactive power will result in current flowing into device more valuable.
The increase of power will negatively impact the electrical system as follows.

2.1 Electrical protective equipment in the factory must be rated to higher.

2.2 Electric current flow in power lines will be increased to cause a loss in the cables more. Including the voltage drop across the cable higher.

2.3 When electric current of transformers which increase as the electricity distribution will have to work harder and inefficient.

3. Equipment or machinery, electrical needs sum vector of working the two parts will have power.
Appearent power is measured in kilovolt amperes (kVA), which is a power that must be paid to the machinery or equipment. Appearent power that is equal to voltage times the current value.
This value is measured in terms of the RMS, if the electrical system has been used in the reactive power to do the job are displayed. Greater than the power that is always active.
Power factor, pf is the ratio between real power to the appearance power by this value, we will note that the electrical equipment. Or electrical systems that make use accounted for much real power.
The high pf would show the effectiveness of using the equipment or the system is higher as well.
The power factor. It is between 0 to 1, depending on type of equipment As shown in the table.

Equipment	Power factor value
Induction Motor	Working 0 % of rated -------> 0.17
	Working at 25% of rated -------> 0.55
	Working at 50% of rated -------> 0.73
	Working at 75% of rated -------> 0.80
	Working at 100 % of rated -----> 0.85
Incandescent Light	1.0
Fluorescent Light	0.5
Discharge Light	0.4-0.6
Furnaces	0.8 - 1.0
Welding Device	0.7 - 0.9

Improve the Power Factor of the electrical system have increased the lead to good results such as

1. Reduce the current flowing in the device. Or electrical system that would reduce power losses in the electrical system to be beneficial to other devices last for longer.
2. Reduce the voltage drop in electric system.
3. Reduce electricity costs down by
   - Reduce energy use (kW-hr) due to reduced electricity losses down.
   - Reduce reactive power demand, which requires that the pea. Power users have the Power Factor (lag) during any month. Reactive power demand for the highest average in 15 minutes when thinking maximum 15 minute kilovar demand exceeds 63 percent of the reactive power demand, the average of 15 minutes maximum. When representing kW (maximun 15 minute kilowatt demand), then only the excess power will be charged at the rate of 14.02 baht per kilo Ward.
   (from "electric rates in October 2000, the PEA).

These good results. Why we should turn their focus. That we can improve the power factor to how high up. How much to invest. Worthwhile investment or not because he might be the one who paid for this power factor without knowing the time.

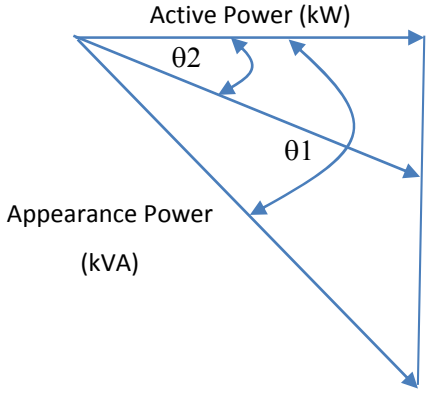
Improve the power factor.

We can improve the power factor. To be increased in two ways.

1. The capacitor into the electrical system.
2. Synchronous Motor using motor installed instead of the original induction motor.
   Power factor, but changes will occur inadequate Synchronous Motor running.

It discusses the use of the capacitor into the electrical system only. Sizing capacitor must take into account the effects are.

1. The harmonics or the Over voltage.
2. The price of the capacitor. Have calculated the costs incurred.



Reactive Power
adjust P.F. (kVAR)

Reactive Power of
capacitor (kVAR)

P.F.value the original system is PF1 = cosθ1

P.F.value of the improve system is PF2 = cosθ2

Where we can find to solve the
P.F. Capacitor to the table page 8

Shows the relationship of different power before and after adjusting the power factor.