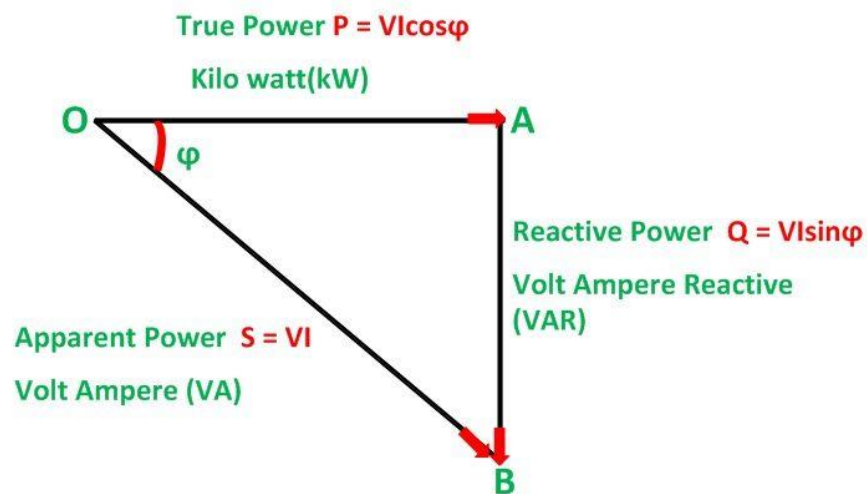


# Why Finance Your Power Factor Correction Bank

## Penalties

In Ontario, hydro companies charge their *demand* customers extra money for poor power factor. Typically, if your power factor is good (0.9 to 1.0) your **demand** and **transmission** charges will be based on 100% kW. If your power factor is bad (< 0.9) your demand and transmission charges will be based on 90% kVA.

## Power Triangle



Circuit Globe

As you can see, kVA is on the hypotenuse of the power triangle, and that number will always be larger than kW until unity is met (power factor of 1).

## Billing Example

### Your electricity charges

Your service type is General Service - Demand

#### Electricity - kWh

Electricity you used in kilowatt-hours = 511,391.3389 kWh

Transformer loss allowance of 1.0% = - 5,114 kWh

Adjusted usage in kilowatt-hours (506,277.4255 x 1.061\*) = 537,160.3482 kWh

#### Demand - kW

Demand used in kilowatts = 1,596 kW

Transformer loss allowance of 1.0% = - 16 kW

Total demand in kilowatts = **1,581 kW**

#### Demand - kVA

Demand used in kVA = 2,650 kVA

2,650 x 90% = 2,385 kVA

Transformer loss allowance of 1.0% = - 24 kVA

Total demand in kVA = **2,361 kVA**



Your demand charges are based on 2,361 kVA this month as it is the higher of the two measures.

Your power factor is 1596 kW ÷ 2650 kVA, which equals 60%.

Electricity: 537,160.3482 kWh @ 1.618491 ¢

Global Adjustment: 537,160.3482 kWh @ 9.077342 ¢

Delivery

Regulatory Charges

Customer supplied transformation allowance @ \$ 0.60 /kW

Debt Retirement Charge

HST

**Total of your electricity charges**

\$	
\$	
\$	
\$	
\$	CR
\$	
\$	
\$	
\$	

In this case, the customer had poor power factor at 60%. Let's imagine their delivery (demand, transmission & connection) charge was \$10 per kW/kVA. They would have paid \$23,610.00 (2361 kVA\*10) for delivery on this bill. If their power factor was 90% or greater, they would have paid \$15,810.00 (1581 kW\*10) for delivery on their bill. That's a difference of \$7,800.00! Now imagine that over the course of a year, (\$7,800.00\*12) that's \$93,600.00 spent on poor power factor!

It gets even scarier though. Let's now imagine this company didn't have the capital to spend on a power factor correction bank. There's always something else they need to purchase in order to expand or maintain their business, and the power factor bank always comes last, with no budget left at the end of the year for a purchase. Next thing you know, 5 years has gone by, then 10. There was always money for the hydro bill because its part of their overhead, but never money for the power factor equipment.

This is the case with many companies, with the above example on the larger end of the scale. It doesn't have to be that way though, and that's where financing comes into play.



## Financing

Financing allows a company to purchase their power factor equipment right away, without dipping into their capital expenditures budget. Once the capacitor bank is installed and a month or so has gone by, the company can start to enjoy their savings. Let's see how the savings and financing work together.

Imagine the capacitor bank required to fix this company's power factor problem costs \$50,000.00 to purchase. Let's take a look at our \$10.00 buy-out payment options.

<b>\$10.00 Buy-Out</b>			
<b>24 M</b>	<b>36 M</b>	<b>48 M</b>	<b>60 M</b>
<b>\$2,241.00</b>	<b>\$1,535.00</b>	<b>\$1,179.50</b>	<b>\$967.50</b>

If our customer has a monthly savings of \$7,800.00 from power factor correction, and chooses the 24-month payment plan, then there's a difference of \$5559.00 each month. The savings from the power factor correction more than covers the lease payments.

## Conclusion

Most capacitor banks sold by Cos Phi have a 1 to 5-year return on investment. We design our capacitor banks to live their full 200,000-hour (22 years) lifespan. Our equipment will pay for itself many times over in that time. So, don't let your capacitor bank come last. Don't let 22, 5, or even 1 year go by once you've identified a poor power factor problem. Call us for a quote today and ask about our RCAP leasing option.

If you're unsure if you have a power factor problem, or not sure what size equipment to purchase, ask us for a free *billing analysis*. You send us your hydro bills, and we'll send you a report which will estimate the following year's savings.