

Case study 1 – Rice Distributor
Network operating company -
UKPN - London

Reactive power charge at time of survey – 0.329p / kVAh in excess of 33% of the kWh (i.e. a charge is imposed only if an average power factor of less than 0.95 is achieved)

Available Supply Capacity (ASC) charge - £0.93 / kVA / month

During our site survey the following load vectors were recorded:

kVA	kW	PF	kVAr
2209	1684	0.76	1430

From the billing information the estimated maximum demand load vectors were as follows:

kVA	kW	PF	kVAr
2497	1923	0.77	1593

In order to correct the maximum demand condition to a more economical level of 0.96, 1000 kVAr of power factor correction was offered.

With the above capacitors connected the maximum demand condition was predicted to be as follows:

kVA	kW	PF	kVAr
1992	1923	0.96	593

The reduction in maximum demand predicted = 2497 – 1992 = 505 kVA

Potential annual savings

From the above information, the following savings were calculated:

Excess reactive power – on average the client was receiving £1500 / month in reactive power charges. By installing the equipment recommended this charge would be eliminated as an average power factor

greater than 0.95 would be maintained. The potential annual saving is thus £1500 x 12 = £18,000.

Available supply capacity – the reduction in maximum demand of 505 kVA represents an annual available supply capacity saving of 505 x 0.93 x 12 = £5635.80

Total potential annual savings =

£23,635.80

Installed cost of equipment recommended

The total installed cost of the equipment recommended was £20,612.00

Payback period of equipment

From the cost of the equipment and the potential annual savings, the payback period of the equipment was calculated as approximately 10 months.

Result of survey

The equipment recommended was installed. The reactive power charges were eliminated and the client is in the process of re-negotiating their available supply capacity.

“ BY INSTALLING A BESPOKE POWER FACTOR CORRECTION SCHEME PFC ENGINEERING MANAGED TO ACHIEVE SAVINGS OF £23,000 PER ANNUM FOR A MAJOR UK RICE DISTRIBUTOR, ACHIEVING A PAYBACK PERIOD OF LESS THAN 12 MONTHS. ”

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