

Power factor correction can be extremely beneficial. Benefits include everything from reduced demand charges on your [power system](#) to increased load carrying capabilities in your existing circuits and overall reduced power system losses. Below you'll find a list of five benefits in descending order of the potential financial impact on [your utility bill](#).

1. AVOID POWER FACTOR PENALTIES

Most industrial processing facilities use many induction motors to drive their pumps, conveyors, and other machinery in the plant. These induction motors cause the power factor to be inherently low for most industrial facilities. Many electric utility companies assess a power factor penalty for lower power factor (usually below 0.80 or 0.85). Some also incentive high power factor (above 0.95, for example). By adding power factor correction, you can eliminate the power factor penalty from your bill.

2. REDUCED DEMAND CHARGES

Many electric utility companies charge for maximum metered demand based on either the highest registered demand in kilowatts (KW meter) or a percentage of the highest registered demand in KVA (KVA meter), whichever is greater. If the power factor is low, the percentage of the measured KVA will be significantly greater than the KW demand. Improving the power factor through power factor correction will lower the demand charge, helping to reduce your electricity bill.

3. INCREASED LOAD CARRYING CAPABILITIES IN EXISTING CIRCUITS

Loads drawing reactive power also demand reactive current. Installing power factor correction capacitors at the end of existing circuits near the inductive loads reduces the current carried by each circuit. The reduction in current flow resulting from improved power factor may allow the circuit to carry new loads, saving the cost of upgrading the distribution network when extra capacity is required for additional machinery or equipment, saving your company thousands of dollars in unnecessary upgrade costs. In addition, the reduced current flow reduces resistive losses in the circuit.

4. IMPROVED VOLTAGE

A lower power factor causes a higher current flow for a given load. As the line current increases, the voltage drop in the conductor increases, resulting in a lower voltage at the equipment. With an improved power factor, the voltage drop in the conductor is reduced, improving the voltage at the equipment.

5. REDUCED POWER SYSTEM LOSSES

Although the financial return from conductor loss reduction alone is insufficient to justify the installation of capacitors, it is sometimes an attractive additional benefit; especially in [older plants](#) with long feeders or in field pumping operations.