

UNDERSTANDING POWER FACTOR

The ratio between real power and apparent power in a circuit is called the **POWER FACTOR**. It's a practical measure of the efficiency of a power distribution system. For two systems transmitting the same amount of real power, the system with the lower power factor will have higher circulating currents due to energy that returns to the source from energy storage in the load. These higher currents produce higher losses and reduce overall transmission efficiency. A lower power factor circuit will have a higher apparent power and higher losses for the same amount of real power.

The utility company may be penalizing your company for poor or low power factor. A load with a low power factor draws more current than a load with a high power factor for the same amount of "useful" power transferred. This is significant because utility companies supply customers with volt-amperes, but bill them for watts. When the power factor is below 1.0, the utility company must generate more volt-amperes than necessary to supply the real power (watts). This increases generation and transmission costs. Additional costs may be charged to customers who have a power factor below some limit, typically 0.9 to 0.95.