

Be Wary of Toxic Marketing Practices!

Power Factor Correction— What it IS, What it is NOT

There are certain myths about power factor correction which create confusion and misunderstanding about saving energy. Some suppliers in the marketplace are sending inaccurate messages about a “magic box” that saves energy and electricity, reduces electric bills, and improves power quality. Components typically found within these “magic boxes” include inductors, transient voltage surge suppression, and sometimes an electronic control; none of which will save a significant amount of energy, or reduce a user’s electric bill. Only when appropriate capacitors are included in such a box, will the potential for cost savings result. While power factor correction does reduce line currents supplied to low power factor (inductive) loads, it does not result in a significant reduction of a load’s power requirements or energy consumption. Capacitor based equipment will help to reduce the cost of electricity only where low power factor is found AND where the utility charges a penalty for low power factor. This penalty is generally imposed on large industrial or commercial users, not residential consumers.

Energy efficiency is the practice of decreasing the quantity of energy used while achieving the same or similar level of end service. Claims of 20%+ energy reduction, from “magic box” suppliers, are not mathematically possible. Consider distribution losses from transformers and cable (current flow). Expressed as I^2R , these losses are usually in the range of 1% to 2% of a total facility load. The associated savings realized here as a result of improving power factor is relatively insignificant compared to the cost of the equipment and its installation. Simply stated, power factor

correction itself saves little if any appreciable energy, and does not make motors run cooler or run more efficiently. When an electric provider serves a facility with poor power factor, it must be capable of supplying higher current levels to power a given load. Improvement in power factor will have a positive effect on the amount of electricity delivered by the utility provider.

Demand response programs and technologies, as well as energy efficiency techniques and their wide range of solutions, are certainly a major advancement in providing users new options for managing energy costs. However, “magic box” devices offered for residential service, or marketed as franchise opportunities provide no energy savings benefits. Power factor correction will help to eliminate electric utility penalties (kVA demand as example), increase system capacity, help reduce voltage drop, and grid utilization. Do not be fooled by companies touting any other claims: **Power factor correction is NOT intended to reduce energy! Power factor correction IS intended to save users money!**

For additional information refer to these documents at www.stacoenergy.com:

http://www.stacoenergy.com/PFC_appnotes.html
NIST Team Demystifies Utility of Power Factor Correction Devices

<http://www.stacoenergy.com/pdf/articles/The Economics of Improving Power Factor for PR-prod.pdf>
The Economics of Power Factor

<http://www.stacoenergy.com/pdf/brochures/PFC HFC Primer.pdf> Power Factor and Harmonics Primer, Facility and Engineering Reference

Contact Us:

US Toll Free: 866-261-1191

Phone: 937-253-1191

E-mail: sales@stacoenergy.com

www.stacoenergy.com



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