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U.S. Environmental Protection Agency

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Can Power Factor Correction Devices (sometimes called Amp Reduction Units or kVAR) earn the ENERGY STAR label? Do they really save as much money as they claim?

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ENERGY STAR does not qualify any Power Factor Correction Devices. Please send us an email at logomisuse@energystar.gov if you see one that claims to have an ENERGY STAR certification.

Power Factor Correction Devices claim to reduce residential energy bills and to prolong the productive life cycles of motors and appliances by reducing the reactive power (kVAR) that is needed from the electric utility.

We have not seen any data that proves these types of products for residential use accomplish what they claim. According to the government's National Institute of Standards and Technology (NIST), in a residential setting, these devices may not deliver the advertised savings ([NIST Team Demystifies Utility of Power Factor Correction Devices](#) [EXIT](#) ⇄).

Power factor correction devices improve power quality but do not generally improve energy efficiency (meaning they won't reduce your energy bill). There are several reasons why their energy efficiency claims could be exaggerated. First, residential customers are not charged for KVA-hour usage, but by kilowatt-hour usage. This means that any savings in energy demand will not directly result in lowering a residential user's utility bill. Second, power factor correction devices themselves use energy to work, so the amount of energy they save must be greater than the amount of energy they need to operate. The only potential for real power savings would occur if the product were only put in the circuit while a reactive load (such as a motor) were running, and taken out of the circuit when the motor is not running. This is impractical, given that there are several motors in a typical home that can come on at any time (refrigerator, air conditioner, HVAC blower, vacuum cleaner, etc.), but the unit itself is intended for permanent, unattended connection near the house breaker panel.

For commercial facilities, power factor correction could be cost effective if the utility is charging a fee for low power factor. The energy savings alone will generally not make an installation cost effective - they are usually below 1% and always below 3% of load, the higher percentage occurring where motors are a large fraction of the overall load of a facility. However, if an organization could improve their power factor and avoid utility surcharges for low power factor, then there could be monetary savings.

Power factor correction devices are NOT eligible for a federal tax credit.

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