

Do Surge Protection Products Save Energy?

A common question that NEMA Surge Protective Device (SPD) Manufacturers receive is, "I was approached by a company that told me I could save 25% off of my utility bill by installing their surge suppressor. Is this true? How does the suppressor save energy?"

This is not a new question. However, with the focus on "Green" and energy saving equipment, it is being asked even more frequently.

Briefly stated, the answer to the question is, "No. A surge protector will not save you energy or reduce your electric bill". SPDs, (formerly known as transient voltage surge suppressors (TVSS)), are not designed for that purpose. The purpose of this document is to explain what an SPD will do, and to advise consumers and users to beware of any claims made regarding a reduction in kilowatt usage, energy savings, or a reduction in power consumption as a result of the use of SPDs.

What do Surge Protective Devices do?

Surge Protective Devices (SPDs) is the current term given to devices that protect electrical and electronic equipment from the harmful effects of brief overvoltages, or "surges" that can be present on an electrical system due to some sort of electrical event such as surges introduced during a lightning storm or by electric loads switching on and off. Past terminology for these devices included, Transient Voltage Surge Suppressors (TVSS), Secondary Surge Arrestors or simply Surge Protectors.

Voltage transients, surges, or spikes, are overvoltages that appear on an electrical system for a very brief period of time. These voltages can be very high, often thousands of volts even on a 120 volt electrical system. Typically, voltage transients last less than a millisecond or one thousandth of a second. Even though voltage transients can be very short in duration, they can cause equipment damage, degradation or even equipment failure.

SPDs reduce these overvoltages to a level that can be withstood by the electrical or electronic device connected to the system. SPDs perform a very important function in protecting an electrical system and are installed in the majority of new commercial and industrial buildings and whole home SPDs are often installed in new homes.

Some SPDs also include capacitors that can filter out high frequency noise on the electrical system as this can interfere with electronic equipment.

Beware of SPDs Sold as Energy Saving Products

Individuals and companies that have represented and sold surge suppressors as energy savings products have been around for decades. State Attorney Generals and the Federal Trade Commission have warned consumers against such representations and have prosecuted companies for false claims¹. The FTC, charged a Florida company with “falsely representing that its “transient voltage surge suppressors” would save consumers 20 percent on their electric bills...”²

Unfortunately, there has been a resurgence of these types of claims and representations in the recent past as energy conservation, “green” messages and sustainability have seen renewed focus.

Here are some warning signs and key tactics of companies that falsely claim energy savings due to surge suppression usage:

- **Guaranteed savings** – one of the most common tactics is to offer a “guarantee” of savings. Many firms “guarantee” 10-30% energy savings. Very few people get to collect on the guarantee for a variety of reasons.
 - The company selling the products goes out of business before the end of the guarantee period
 - Undue requirements in the “fine print” make it next to impossible to provide the information required to collect on the guarantee. One company’s guarantee states that you must have the product installed for a minimum of 24 months before you can make a claim. In addition you have to provide the daily high and low outdoor temperatures for the past 48 months, as well as any changes in the building electrical system, any new equipment or appliances installed, etc.
- **Company will not explain how their product works** – these companies are typically very short on explanation of how the product works often claiming that it is “patented technology” or “trade secret” or will use simplistic language that may sound reasonable to a non-technical customer.
- **Heavy use of testimonials versus hard data** – companies will often use testimonial letters from users and individuals to promote their products. In virtually all cases, these testimonials come from non-technical people that enthusiastically endorse the product citing lower utility bills over a short period of time. With the high number of variables involved in a month to month comparison of utility bills such as outside temperature, occupancy changes, usage changes it is likely that many factors can contribute to a change in electrical bill, either up or down. Of course, the company only promotes the testimonials from the bills that went down and claims responsibility for the decrease. Another phenomenon is that many

individuals and businesses that are interested in saving energy take multiple steps to save energy such as installing energy efficient lighting and appliances, reducing usage, etc. Savings that are really a result of true energy conservation measures are often claimed by the “energy saving surge suppression” company.

- Imply that their product is endorsed by Underwriters Laboratories (UL) – many companies falsely promoting their products as energy saving will point to their certification by UL as “proof” that their energy savings has been verified. Underwriters Laboratories is a Nationally Recognized Testing Laboratory that tests product safety and evaluates products to certify that they comply with an applicable standard with respect to the risks of fire, electrical shock and injury to persons. They do not verify equipment function or performance claims³.

So, why use SPDs and what should I look for before purchasing?

Recommendations:

Surge Protective Devices are an important component in modern electrical systems, especially those systems that use electronic equipment of any kind. However, SPDs are not designed for, nor will they reduce kilowatt usage, provide energy savings, or reduce power consumption.

Before purchasing an SPD,

- Beware of inflated or sensational claims. If it sounds too good to be true, it probably is.
- Understand the warranty, especially if the warranty is a big selling point. Read the fine print, sometimes the conditions of the warranty make it virtually impossible to successfully recover a claim.
- Make sure the manufacturer is a reputable company and stands behind their product. The National Electrical Manufacturers Association (NEMA) is a trade association of electrical equipment manufacturers its approximately 450 member companies manufacture products used in the generation, transmission and distribution, control, and end-use of electricity. There are approximately 20 NEMA Members that manufacture Surge Protective Devices. Buying an SPD from a NEMA member company means you are buying a product from a company that has a long term interest in the electrical industry and supports an organization that develops standards and promotes safety in the design, manufacture and use of electrical products.

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<http://www.ftc.gov/opa/2002/04/energysurf2002.shtm>

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<http://www.ftc.gov/opa/predawn/F93/solarsale8.htm>

3

<http://www.ul.com/global/documents/corporate/aboutul/publications/newsletters/electricalconnections/april09.pdf>