POWER SAVE INTERNATIONAL

# Our Technology Compared To Others

**This serves to provide information on the Power-Save Capacitor units and how they differ from typical In-Parallel Capacitor installs.**

**First of all, our Capacitor units are the first of their kind to be installed as an in-serial application**. Normally, with a capacitor we think of an in-parallel installation (right at the motor itself), but that does not hold for our unit. Here is the basic difference between the two types of installations.

1) **In-Parallel Install** - This installation is what we are typically used to when it comes to installing capacitance. Every Energy Star appliance manufactured, (with the exception of an electric stove, because it's resistive in nature) has a parallel capacitor installed directly on the compressor or drive motor. These In-Parallel installations help to correct the Power Factor right at the motor load itself by storing the KVA-R created by the inductive motor, and sending it back to the motor, with a push in pull out type of operation which is continuous until the motor is turned off. This type of capacitor works very well in increasing energy efficiency of inductive motor appliances, that's why buying an Energy Star appliance is a good thing to do in the long run. These capacitors keep the KVA-R from getting into the line and creating resistance, which in turn causes electricity to be lost in heat dissipation ($I^2R$ line losses), which is Watts. When you get rid of the resistance caused by the KVA-R, the line losses go away, and the amount of current/amperage being drawn thru your meter decreases, and since current/amperage is part of the math equation to determine watt usage, the watt usage being read by your meter also goes down.

   Another example of an In-Parallel installation of a capacitor is to install it separately on each inductive motor that is running in your home or business. This would be referred to as After Market capacitance installation. Typically these capacitors are rated by KVA-R to determine what size should be installed on certain motors. Measurements of KVA-R must be taken to determine the size of capacitor that you need for each individual motor. This install is as good as an EnergyStar product but the disadvantage in this type of installation is COST EFFECTIVENESS. It is very expensive to install a capacitor on every motor in a building, which in turn makes the return on investment a lot longer. For example, a Grocery Store with 10 to 20 refrigeration compressor motors would need to install a capacitor on each motor, with a cost of about $10,000 to $25,000 depending on the sizes needed. Our In Serial capacitors do the same job and cost much less.

2) **In-Serial Install** - This type of capacitor install is what Power Save Energy Corp. manufactures to help customers become electrically efficient. First of all, instead of determining the amount of KVA-R being produced by the inductive motor, we use capacitance in a much different form. Our capacitors are sized by the amount of inductive load in the building, they are rated by CONTINUOUS INDUCTIVE LOAD, and, they are not installed at the motor, they are installed preferably on the Main

Distribution Panel but depending on the electrical system configuration can also be installed on a sub main, a sub-panel, or a fused/non fused disconnect.

**They are installed after the meter,** thus they help the customer and the utility (explained later). These capacitors work by sending the KVA-R needed to the inductive motors to help create the Electromagnetic field. Thus, in doing so, no KVA-R is sent back against the flow of electricity to create the resistance, which in turn means NO LINE LOSS. (See Above) If our units are installed with a dedicated breaker then either a 20 Amp 2-pole (Single Phase) 30 amp 3-pole or a 40 amp 3-pole (3 Phase) is needed. If they are installed directly on a disconnect, no breakers are needed. Multiple units can be installed to address customers' needs. All Power-Save capacitors do is improve Power Factor, which in turn reduces resistance, which in turn gets rid of line loss**. Our capacitor units just do it in a much more cost effective way than any other installation**.

Mentioned above is how the installation of these capacitors benefits both the customer and the local utility. The customer benefits by not having to pay for heat dissipated electricity anymore, and by decreasing the current/amperage draw. They also, by increasing their Power Factor, help to decrease Demand charges on electric bills which is billed in KVA or KW. The utility benefits because you now have a higher Power Factor, so they no longer have to deliver as much electricity to you, thus INCREASING THEIR GENERATION CAPACITY. Think about this. If every customer had a .95 Power Factor or better, their ability as a utility to increase power generation would increase dramatically, and would help with their demand management when demand is very high.

**Q:** When does a utility usually have the highest Demand?

**A:** Summertime . Well, guess what the major contributor is to causing that demand problem? Air Conditioning units running. Are they inductive loads? Yes they are, and if they have poor Power Factors, which most do, then they are requiring more demand/current to fight thru the resistance. This just adds to the line loss problem and results in a vicious cycle. However, the good news is that it is easy and inexpensive to rectify this problem with Power-Save Capacitors.

Following is a statement from a major American utility company, Baltimore Gas & Electric Company/Constellation Energy on Power Factor.

**Power Factor**

"Power factor measures how effectively your operation uses electrical power. **Poor power factor means your facility is using and paying for more electricity than it needs while doing the same amount of work**. The net result is higher demand charges on your electric bill and overtaxing your internal wires and transformers."