

Passaic Valley Water Commission  
Construction/Maintenance Department  
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Michael Marotta  
General Maintenance Supervisor

Dear,  
Eli Feder  
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Below are the results of testing done at the Great Falls, Paterson NJ pump #1 switch control center located at Mary Ellen Kramer Park Maple Street, Paterson NJ in our pump station at 9am on September 12, 2016.

The studies are done in a Fluke iFlex 1500-12 model Energy Logger. The readings were taken on the main feed cables that feed the switch control center and labeled the same except for the words "ON and OFF". This indicated that the study marked ON is with the SP1000E units working as they normally do 24 hours a day. These units are dynamic in nature and adjust to the ever-changing electrical loads based on the needs of the business operated out of that switch control center. The study marked OFF is with the four SP1000E units physically shut off at the breakers that were installed to power the units. This was done to analyze the difference between what would normally occur without the installation of the SP1000 units and what occurs while the units are active.

The results show a major increase in the power factor with the units ON. Power factor (PF) is a term that describes the amount of energy being compared to the actual energy being consumed. Without the units the average PF for all three phases combined is .82, which means that on average eighteen percent of the energy at that switch panel is wasted. With the units ON, the average is .88, cutting the average by a third.

The difference in measured KVAR also indicates a benefit with the units ON, kVar is the reactive power consumed by the motors to create the magnetic field that allows motors to spin. The higher the kVar, the more energy is being consumed. With the units OFF, the average kVar was 91, and with the units ON, the average kVar was 70, a 23 percent reduction in consumed kVar.

The last page of the study includes voltage, current, etc., and what is shown here is a reduction in the average current (A) from 185 to 172. A 7 percent reduction in the amps required to do the same work.

The conclusion is that these three factors combined lead to a significant decrease in the amount of energy that is required to do the same work at the pump switch control center.

Sincerely,

