Case Study

KVAR EC® Installation at Publix in Orlando, FL

Location: Publix Distribution Center, 1950 Sand Lake Road, Orlando, FL 32809
Contact: Doug Moreschi, Department Head – ORL, Doug.Moreschi@publix.com

Overview

16 KVAR Energy Controllers (KVAR EC®) were installed (the Installation) at the Location in mid 2009/early 2010 by Activtek Environmental, an authorized KVAR Energy Savings, Inc. (KVAR) distributor. In May 2013, a Measurement and Verification (M&V) study was performed to determine the average savings of the Installation. The M&V results are contained herein.

Measurement and Verification

KVAR EC®: M&V was performed at the KVAR EC® identified in the Installation as K13 which is attached to a disconnect of cereal panel fans. The disconnect services 16 Baldor M3556 fan motors rated at 3Phase, 1HP, 1.7 amp, 1140 RPM.

Sample Load: The sample load was tested to demonstrate the difference with and without the KVAR EC® by recording continuous data from energy metering and data logging with a utility grade Acuvim IIR meter using split core current transformers (CTs) rated at 100 Amps each. The CTs were located at the load side of the breaker on a feeder with a distance of approximately 85 feet of wire. Savings are typically measured at the load side of the breaker for the relevant isolated circuit, which in this case has a distance of approximately 85 feet of wire equaling about 40% of the low voltage portion of the electrical system. The data represents the savings at this point as it was the farthest point where the amperage was not combined with other loads. More savings are realized throughout the entire length of the system. In the sample load, there is an additional 130 feet to the secondary side of the relevant transformer where additional savings are being realized. 85 feet of savings were recorded and the additional 130 feet (totaling 215 feet of savings) were estimated based on several factors such as the electrical system factors, empirical results, history, and primarily that the savings would be consistent throughout the rest of the system.

Time: The M&V data was calculated to represent an average 16 hour per day run time taking into account usage.

Cost: The cost per kWh at the Location is $0.08296.

Findings

Measured from 85 feet, the sample load with KVAR EC® showed a 4.86% average savings compared to the sample load without KVAR EC®. Calculating a consistent reduction per electrical foot, a 12.29% savings was projected with the additional 130 feet, if measured at the secondary side of the transformer. For clarity of accuracy, it is important to note that the extended savings projection is an estimated and calculated figure due to the limitations of measurement and recording points, whereas the actual measured reduction is an empirical value.

Average kW Without KVAR EC®	14.46
Average kW With KVAR EC®	13.76
kW Reduction with KVAR EC®	**4.86%**
Distance from KVAR EC® to Measurement	85 feet
Distance from Measurement to Secondary Side of Transformer	130 feet
Percentage of System Measured	39.53%
Extended Savings Projection	**12.29%**

Results

The M&V results, using both empirical and calculated data, showed a Return on Investment (ROI) of the Installation of less than 16 months and the following savings:

Results of Installation	
Monthly kW Savings	25.50
Monthly Dollar Savings	$996.63
ROI	**15.8 months**

Conclusion

Savings generated from the Installation has produced a ROI for Publix and continual kW and dollar savings. Other Publix facilities would likely produce similar results from a KVAR EC® installation.

Performed by: Rory Malisoff, VP Business Development of KVAR
Keith McCall, Manager of McCall Electrical Service LLC

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