GE Industrial & Power Systems

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February 21, 1997

Mr. Stuart A. Forbes
System One Solutions, Inc.
533 River Road
Westport, MA 02790

RE: Power Measurements using USES® Shunt Efficiency System - August 1996

Dear Stuart:

During August 1996, I performed power measurement tests on USES® SMES - 3D 480V units temporarily installed on a substation feeding motor loads at the GE Aircraft Engine facility in Lynn, MA. The testing was performed in conjunction with yourself, representing SOS, for the purpose of evaluating the USES® System in reducing KW Demand and improving Power Factor on inductive loads.

The testing instruments that I provided and used were a Dranetz 808 Electric Power/Demand Analyzer and a GE type EPM Electronic Power Meter. The testing instrument that you provided and used to measure Amps and KW was a TIF Instruments type KW 220-3. Typical results of the three testing devices follow:

Dranetz 808 Electric Power/Demand Analyzer -- Testing (3) USES® SMES - 3D 480V units
Without USES®: 137.6 A ave., 69.3KW, 75.8KVA, 0.91 PF
With USES®: 114.0 A ave., 59.3KW, 59.3KVA, 0.99 PF
Note: Meter shows a 17% decrease in Amps, a 14% decrease in KW, and improved PF

TIF KW 220-3 -- Testing (3) USES® SMES - 3D 480V units
Without USES®: 135.3 Amps, 109.6 KW
With USES®: 121.3 Amps, 100.4 KW
Note: Meter shows a 10% decrease in Amps and an 8% decrease in KW

GE type EPM Electronic Power Meter -- Testing (2) USES® SMES - 3D 480V units
Without USES®: 486.3A ave., 341KW, 201KVAR, 395KVA, 0.86 PF
With USES®: 463.0A ave., 339KW, 157KVAR, 372KVA, 0.91 PF
Note: Meter shows a 4.8% decrease in Amps and a 5.8% decrease in KVA due primarily from a reduction of 44 KVAR relating to an improved PF. No appreciable decrease in KW was observed. This case involved two USES® SMES - 3D 480V units.

The GE type EPM meter clearly showed that the USES® System improves Power Factor on inductive loads thus reducing KVA and KVAR demands. The Dranetz 808 Electric Power/Demand Analyzer and TIF Instruments type KW 220-3 both showed that the USES® System improves Power Factor on inductive loads thus reducing KVA and KVAR demands and offers significant reductions in KW usage. In summary, the USES® System tests clearly demonstrated a reduction in KVA demand from Power Factor improvement on inductive loads and may offer significant savings in KWh usage and KW demand charges. Power Factor improvement, coupled with possible savings from reduced KWh and KW demand has the potential to afford a favorable ROI and significant long term savings in power costs.

Sincerely,

Walter E. Davis

Walter E. Davis, P.E.
Senior Power System Engineer
GE IS-ES