

Mirrored Designs Reduce Load on Supply Transformers

Providing computer storage space to the U.S. government and large companies around the country makes reliable electrical service "mission critical" to this Midwestern computer server farm.

The company brought in ARCO Electric Products to determine how to reduce the load on its supply transformers.

Power Factor Capacitors Used

"By applying power factor correction capacitors to the electrical system, we reduced the load from the point of installation all the way back to the utility generators," says ARCO manager Hal Pike.

"We split the electrical system into two mirrored designs," he explains. "The idea was that if one electrical system failed, the tie switch could be thrown and fed from the other electrical system."

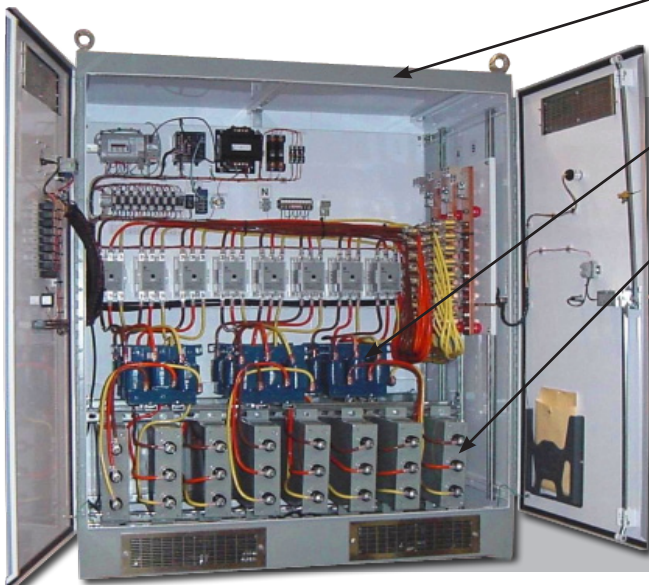
Because of the amount of load present, the power factor on both systems must operate at unity, or 100 percent. If not, the transformer feeding both could be overloaded, causing complete failure.

Each electrical main required 900 kVAR to maintain unity power factor if one transformer failed and the tie switch was thrown. "The capacitor system corrected the power factor, as designed, and also provides monitoring for each main," Pike says.

"The customer uses its existing supply transformers with the reduction of load being applied. The power factor capacitors allowed the customer to remove 1.2 amps per kVAR of correction applied, and the capacitor kVAR totaled 900 kVAR on each transformer applied."

Desktop Computers Track Data

The customer tracks all electrical data on each main, including amperage, voltage, frequency, kW, kVA, harmonics and other critical electrical system components. Because capacitor controls are tied into the customer's network via an Ethernet hub provided by ARCO, data is visible at various desktop computers in their system around the country. Cost of the project was \$74,000.



Heavy Duty Metal Enclosure

Heavy Duty Detuning Reactors

Heavy Duty Industrial Capacitor Cells

Up Close

Computer Server Farm Mirrored capacitor installations

Cost: \$74,000

Benefits

- Reduced supply transformer load
- Backup electrical system
- Data monitoring