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MAXIMUM POWER TRANSFER SOLUTION

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How Electric Power Quality Effect Your Business?

by Adil Khan, President TransPower Company

What is Poor Quality Electricity & Why Does it Occur?

COOL, CLEAN CONDITIONED POWER™

Any deviation from normal voltage and current can be thought of as a power quality issue. Power quality issues can be due to high-speed events known as voltage impulses, electrical surges, spikes, transients, frequencies variations, presence of unwanted frequencies, wave shape faults, total power loss, noise, unbalanced load conditions, electromagnetic fields, electrostatic fields, electromotive voltages, electromagnetic interference, resonance, harmonic distortion, inductance, capacitance, improper grounding and neutral connections.

Power quality can also be thought of as the load's ability to function properly

What are the Symptoms of the Poor Quality Electrical Power?

- Devices Overheat
- Periodic Malfunctions
- Shorter MTBF
- Requires More Maintenance
- Reduced Useful Life

What Causes Poor Quality Electrical Power?

Most electric power quality issues are generated by electric devices in buildings. Non-linear loads are the major cause of quality issues. Following are some of the loads that cause power quality problems:

Arc Furnaces	Personal Computers
Battery Chargers	Photocopiers
Compressor Motors	Switch-mode Power Supplies (SMPS)
Factory Equipment	UPS Battery Back-up Systems
Fluorescent Lamps	Variable Frequency Drives (VFDs)

HVAC, AHUs, FCUs	Variable Speed Motors and Drives
Laser Printers & Fax Machines	Welding Machines

Single-phase non-linear loads are prevalent in modern office buildings. Three-phase, non-linear loads are widespread in commercial office buildings, factories and government facilities.

Does Electric Power Quality Affect Electricity Bills?

It is important to understand that not only does poor quality electricity have a negative effect on equipment connected to the network, it also has an effect on electricity bills.

Power quality has a direct impact on electrical consumption and electrical demand. Poor quality electricity increases the Amps required by an electrical network. Good quality electricity reduces the Amps required for an electrical network.

The two items that show up most often on electricity bills are KW and KWh. In some cases KVA Charges and KVAR Charges are shown. Some Power Companies charge penalties for low Power Factor performance.

When Amps decrease (KVA, KVAR and Peak KW) charges decrease.

When KVA and KVAR decrease, electricity charges decrease.

The increase or decrease in Amperes is determined by the Power Quality.

Poor Power Quality increases the Amperes required. **Good Power Quality decreases** the Amperes required.