

Subject: power supply Quality

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1 a. power Quality: power quality is the degree to which both the utilization and delivery of electric power affects the performances of electrical equipment.

b. Three sources of power Quality problems

i) supply / utility side

ii) end-user side

iii) Natural causes

c. Any occurrence manifested in voltage, current or frequency deviations which result in failure or misoperation of end-use equipment.

d. short duration variations

i) instantaneous - sag / swell

ii) Momentary - Interruption / sag / swell

iii) Temporary - Interruption / sag / swell

e. Harmonics: Harmonics are the periodic distortion of the voltage or current wave form.

2. power quality is the degree to which both the utilization and delivery of electric power affect the performances of electrical equipment.

Reasons for increased concern in power quality:

⇒ The ultimate reason that we are interested in power quality is power's economic value. There are economic impacts on utilities, their customers, and suppliers of load equipment.

⇒ The quality of power we can have a direct impact on many industrial consumers. There has recently been a great emphasis on revitalizing industry with more automation and more modern equipment. This usually means electronically controlled, energy efficient equipment that is often much more sensitive to deviation in the supply voltage than were its electromechanical predecessors.

⇒ The electric utility is concerned about power quality issues as well. Meeting customer expectations and maintaining customer confidence are strong motivations.

⇒ Residential customers typically do not suffer direct financial loss as a result of power quality problems, but they can be a potent force when the utility is providing poor service. Users become more sensitive to interruptions when they are reliant on this technology.

→ load equipment suppliers generally find themselves in a very competitive market with most customers buying on lowest cost. The primary responsibility for correcting inadequacies are also unaware of the types of ~~it~~ ultimately lies with the end users who must purchase and operate it.

→ since many end users are also unaware of pitfalls, one useful service that utilities can provide is dissemination of info on power quality and the requirements of load equipment to properly operate in Real world.