



## **GENERATOR SET BALANCED AND UNBALANCED LOADS**

### **THREE PHASE BALANCED LOADS**

A balanced three phase load is one that is equally shared (balanced) across all three phases.

The total load is determined by adding up the individual kW balanced loads.

### **FORMULA**

The conversion formula is as follows:

$$\begin{aligned} \text{kW gen} &= \text{kW load} \\ &= \text{kVA} \times \text{PF} \\ &= \frac{\sqrt{3} \times \text{volts} \times \text{current} \times \text{PF}}{1000} \end{aligned}$$

$$\begin{aligned} \text{PF} &= \text{power factor of load} \\ \text{Volts} &= \text{rated line to line voltage} \\ \text{Current} &= \text{rated line current} \end{aligned}$$



### **THREE PHASE UNBALANCED LOADS**

An unbalanced 3 phase load is one in which the load is not equally distributed over all the three phases.

To obtain the equivalent 3 phase rating the highest single phase loading must be multiplied by 3.

An unbalanced load give rise to unequal phase to phase and phase to neutral voltages.

### **FORMULA**

The formula is as follows:

$$\text{KW gen} = \frac{3 \times \text{volts (line to neutral)} \times \text{current} \times \text{PF}}{1000}$$