

CONSIDERATIONS OF INDUCTION VERSUS SYNCHRONOUS GENERATORS

- A) An induction generator is inherently simple, being nothing more than an induction motor.
- B) An induction generator must be operating in parallel with a comparatively larger synchronous generator in order for it to operate. This larger synchronous generator may be the public utility grid.
- C) If the public utility loses power, the induction generator will automatically shut down. It is not able to produce stand-by power.
- D) The synchronizing instrumentation needed to parallel a synchronous generator with a public utility is more complex than with an induction generator.
- E) Synchronous generators have the advantage of being able to generate at a predetermined power factor into the grid, through the use of a power factor controller.
- F) An induction generator draws KVAR's at a lagging power factor from the public utility grid to provide excitation. It may be necessary to install capacitors to correct this lagging power factor condition. The KVAR requirement can be as much as 40% or more of the KW generated.
- G) Power factor correcting capacitors can only be sized for one load value. If the induction generator's prime mover varies its power input, the power factor of the generator output will also vary. There is no convenient control of an induction generator's power factor, as there is with a synchronous generator.
- H) If an induction generator and its associated capacitors are disconnected from the grid, there is a possibility that the capacitors can build up a charge to a dangerous level. Appropriate precautions must be taken.
- K) If the public utility grid goes down, the induction generator also goes down. For this reason an induction generator may be considered safe since it supposedly cannot generate power which would injure the line repairman. This safety advantage may be offset by the condition described in the previous item.
- J) The costs of power factor correction equipment associated with an induction generator may offset the savings in additional synchronizing instrumentation, which is required for a synchronous generator.
- K) Induction generators draw KVAR's from a power grid and therefore are less efficient in nature than synchronous units.