

## Abstract

The rise of the installation of inductive machines such as air conditioning and pump resulting in high demand for reactive power in the power system of the building. higher Reactive power demands are inversely proportional to the value of power Factor of the building itself. The high demand for reactive power and low power factor of the building will result in the emergence of various problems and disorders, both in technical terms such as the pulsating voltage, trip, voltage drop and so on, as well as non-technical terms such as penalty fee from PLN. The reliability of the power system of the building in addition affected by the power factor also affected by several things such as the Selection of type and capacity of the transformers or generators. for example, To overcome the problems arising from the high demand for reactive power can be solved in several ways, one of which is with the installation of capacitor banks. By considering some parameters such as power requirements, type of load and installed electrical load schedules of the building. then we can determine the capacity of the capacitor bank in accordance with the needs of the building itself. Along with choosing the type and capacity of transformers and generators, Installation of capacitors for 120KVAR can improve the power factor of the building which was originally 0,781 becomes 0.921 so that the quality and reliability of the electric power system of buildings can be increased and better.

Keywords: reactive power, power factor, capacitor bank, generator, transformer