

## INTISARI

Gedung Ramai Mall Yogyakarta salah satu gedung yang menggunakan suplai energi listrik dari PLN. Akan tetapi suplai energi listrik dari PLN tidak mampu secara terus-menerus menyediakan energi listrik tanpa adanya gangguan. Sehingga, untuk mengantisipasi hal tersebut maka perlu adanya sistem *back-up* energi listrik berupa generator set (Genset) agar energi listrik tetap terjaga untuk kebutuhan gedung. Genset bekerja secara otomatis, sehingga pada saat energi PLN padam maka genset akan langsung bekerja. Begitupun sebaliknya, apabila energi listrik PLN normal kembali, maka genset akan berhenti bekerja.

Karena sistem *back-up* energi listrik gedung Ramai Mall Yogyakarta sudah bekerja cukup lama, maka perlu adanya evaluasi dan analisa kembali sistem *back-up* gedung untuk menunjang keandalan sistem. Analisa dilakukan dengan melakukan perhitungan dibantu dengan program simulasi ETAP 12.6.0. dari hasil perhitungan, komponen sistem genset gedung masih sesuai dengan acuan PUIL 2000. Akan tetapi, untuk efisiensi genset gedung terbilang rendah yaitu 48,9 % dikarenakan pembebanan genset yang rendah. Dari hasil simulasi, beban yang harus di suplai genset sebesar 865 kVA dan kapasitas genset yang digunakan sebesar 1000 kVA. Dalam hal ini, kinerja genset masih dalam batas kemampuan.

**Kata kunci :** sistem back-up genset, generator, PUIL Instalasi listrik tenaga.

## ABSTRACT

*The Ramai Mall Yogyakarta is one of building which is using the electric source from PLN. However, the electric source from PLN cannot supply continuously without several problems. Therefore, in order to anticipate those problems, we need a backup system as a generator set to keep on the electric energy of the building. Generator set works automatically, when the electric source from PLN cannot be used, the generator set turn on automatically. Then, when the electric source from PLN can be accessed, the generator set turn off automatically.*

*Because of the backup system in The Ramai Mall Yogyakarta had worked for a long time, we need to evaluate and reanalyze the backup system of the building in order to make the system run well. The analyzing of the system applies quantitative approach and it is supported with ETAP I2, 6. 0. Simulation Program which simulates from the result of calculation, the components of the backup system is suitable with PUIL 2000 requirements. However, the efficient degree of the generator set of the building is low 48, 5% because the loading of the generator set is low. According to the result of simulation, the loading which have to be supplied by generator set is 865 kVA and the capacity which is used by generator set is 1000 kVA. In this case, the generator set works in its ability.*

**Keywords:** *generator backup system, PUIL, installation of electric energy*